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Behind such spectacular manifestations of big business achievement lay an administrative complex, probed by three articles in the current issue, that long escaped adequate historical notice.

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Recent Developments in American Business Administration and their Conceptualization

The following article appeared in the March, 1961, issue of the WELTWIRTSCHAFTLICHE ARCHIV, *published since 1913 by the* INSTITUT FÜR WELTWIRTSCHAFT AN DER UNIVERSITÄT KIEL. *Because of the pertinence and broad interest of the study, publication in America seemed highly desirable. Reproduction rights were graciously extended by Dr. Anton Zottmann, editor of the* ARCHIV, *and by the authors. The article is printed here directly from galley proof supplied by the* ARCHIV. *Commentaries by American scholars will be published in a subsequent issue of the* BUSINESS HISTORY REVIEW.

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I

The evolution of large-scale, twentieth-century-style business organization raises certain problems for the economic theorist who deals with the personal element in business and economic development. This is because in the all-important process of decision-making for business enterprise change was reflected in two different ways. Or to put it in other words, two trends have appeared

Remark: This study was partially supported by the Sloan Research Fund of the School of Industrial Management at Massachusetts Institute of Technology.

simultaneously in this connection, trends which all but contradict each other.

On the one hand, the decision-making process in large-scale corporations has become increasingly complicated as more and more persons participate in it, while at the same time the *preparation* of decisions has turned into a more pressing and critical function to be carried out by the officers and employees plus outside advisers. When their work is completed these men report facts and figures, analyzing and submitting them in such a form that conclusions can easily be drawn by the "top management" actually making the decisions. Those preparing them select what they consider important information and drop what they consider of no immediate interest and concern. By molding the result into a digestible form, they gain, often unbeknown to themselves as well as to the top personnel, an extraordinary influence on decision-making.

If the theorist then starts from the inherited concept of the entrepreneur as the decision-making man or team of men, he runs into difficulties. More and more unidentifiable employees below the top level participate in the process just described, or at least prejudice it by actions of their own. If we consider them part of the entrepreneurial team, the latter term loses its significance, for one can speak of a team only where there is personal contact among the members. If, on the other hand, we use the word "team" so loosely as to exclude that criterion, the concept of the "entrepreneur" becomes a mere symbol for human interplay within the large-scale corporation.

As a matter of fact, this solution was the one preferred by Professor Frederick Harbison, partly because of his loose interpretation of what the entrepreneurial function is.[1] As a result, he considers the "entrepreneur" as essentially an "*organization* which comprises all of the people required to perform" [2] that function. Even one of us, the writers, veered at one time towards this answer to the undeniable problem.[3]

If this were the only answer possible, the consequences would be serious. Those interested in pertinent empirical studies and historians who use the theoretical terms of entrepreneur and entrepreneurship are usually interested in the personal element in

[1] Frederick Harbison, "Entrepreneurial Organization as a Factor in Economic Development," *The Quarterly Journal of Economics*, vol. LXX (Cambridge, Mass., 1956), pp. 364 ff.

[2] *Ibid.*, p. 365.

[3] Fritz Redlich, "Unternehmungs- und Unternehmergeschichte," in: *Handwörterbuch der Sozialwissenschaften*, Lfg. 26 (Stuttgart, Tübingen and Göttingen, 1959), p. 540.

business and economic development. By that concept, they hope to identify the men who are or were the leaders within enterprises, the men molding them and fitting them into the market and the national economy; at the same time, if creative individuals, they are or were also the leaders in economic development. Consequently, in using the term of "entrepreneur" to stand for human cooperation in business enterprise, an important topic indeed, we lose the very tool which many of us most need in our research. Such a road cannot be followed.

Fortunately, there is a second possible approach. While on the one hand, more and more persons are drawn openly or tacitly into the decision-making process, those who have the ultimate authority and actually make the final and strategic decisions have become increasingly remote from the daily operations of their enterprise. This alienation from daily operations has proceeded to the point that some authors have seen these leading figures in enterprises as having risen beyond the decision-making process. This is certainly incorrect, as will be shown, but one of us himself temporarily adopted this false way of reasoning.

The second avenue to the solution of our problem lies in resolutely taking a step further in an ideological process by which the "entrepreneur" was developed out of Adam Smith's "capitalist." Adam Smith's "capitalist," as will be remembered, was the conceptual counterpart of the eighteenth-century merchant. He was the individual who provided the capital for his enterprise and, therefore, bore the financial risk, made any necessary strategic decisions, and functioned all the while as the day-to-day manager of his concern. The term "capitalist" stood for an undeveloped, unanalyzed genus.

With the coming of the business corporation, the providing of capital split off from that of running the enterprise, and Jean Baptiste Say was the first to recognize what he called the "entrepreneur" as separate from the capitalist. In Say's days, the "entrepreneur" was the counterpart of a man doing a fairly extensive business by using other people's capital. As we would say today, he was a manager-entrepreneur who, like the eighteenth-century merchant, had occasionally to make a strategic decision and for the rest managed his plant, industrial, commercial or what have you. Many decades passed before this figure was scrutinized closely, although some mid-nineteenth-century economists sensed intuitively that the type needed further analysis. The latter became urgent with the development of a new kind of large-scale enterprise in the

late nineteenth and early twentieth centuries. In such enterprises, men were needed to spend time preparing and making an increasing number of strategic decisions for the solution of major problems arising in their concerns, while they left their daily round of work to another set of men. For the latter, the term "managers" came to be used to distinguish them from the former, the "entrepreneurs." To the "entrepreneurs" an enterprise appeared as an organism to be kept alive, to the "managers" as a mechanism to be kept in working order. Here, of course, we deal with an analysis of two functions which in reality overlap.

By 1960, however, new steps in economic development had come to be reflected in new forms of business organization. "Progress," if you please, demands a parallel step in economic analysis. More concretely, the early twentieth-century concept of "entrepreneur" needs further splitting up, so that new tools may emerge with which to handle mid-twentieth-century reality. However, before we can start our theoretical reasoning, we must present in the next two sections of the paper a description of the development of mid-twentieth-century large-scale business organization and business administration in the United States out of earlier nineteenth-century forms.

II

An historical survey of American business points to the development in this country of three types of enterprise.[4] The oldest one prevailing a hundred years ago was what one might call the single-function firm, i.e., a firm fulfilling one function only. The mercantile house only bought and sold goods. The shipping company as well as the canal and turnpike companies were interested in the single activity of transportation; while the mining concerns specialized in extracting raw material from the ground. Finally, the manufacturing firm only produced goods and, at the same time, produced only a single line of goods. Like the plantation owner, the mid-nineteenth-century manufacturer purchased the necessary materials

[4] The following section is based on a historical analysis of the changing corporate structure and strategy in the United States. It includes case studies of organizational innovations made by du Pont, General Motors, Jersey Standard, and Sears, Roebuck; and also a broader investigation of the experience of more than seventy of the largest industrial and transportation companies in the United States. Preliminary results of this investigation can be found in Alfred D. Chandler, Jr., "Management Decentralization: An Historical Analysis," *Business History Review*, vol. XXX (Boston, Mass., 1956), pp. 111 ff. Chandler, "The Beginnings of 'Big Business' in American Industry," *ibid.*, vol. XXXIII (1959), pp. 1 ff. Chandler, "Development, Diversification and Decentralization," in: *Postwar Economic Trends in the United States*, ed. by Ralph E. Freeman, American Project Series, Center of International Studies, Massachusetts Institute of Technology (New York, 1960), pp. 235 ff.

from and sold his output to commission agents or a few wholesalers. Thus we can characterize a manufacturing firm of that period as a single-product, single-function concern. To be sure, the phrase used above, "fulfilling one function only," should not be taken literally. It means only that one function dominated or dominates a certain kind of enterprise; all others were or are subordinated to the main one and, as far as possible, left to other independent enterprises. Thereby these became or become auxiliary to the enterprise concerned which could not have existed or cannot exist without their contribution.

The years between the Civil War and the turn of the century witnessed the evolution and rapid growth in manufacturing of what can be characterized as multi-function enterprises. Under the stimulus of the development of a national market, created with the help of the railroads and becoming quickly and increasingly a predominantly urban market, manufacturing firms not only came to have plants in different parts of the country but also took upon themselves the simultaneous handling of different activities. Many industrial enterprises developed an elaborate marketing organization dealing directly with consumers. They thereby freed themselves from the dependence on the wholesaler. Simultaneously they started producing one, several, or all of the raw materials needed in the process of manufacturing. In taking over what can be called the procurement function, they again freed themselves from the dependence on wholesalers and at the same time from that on the producers of raw material. Some manufacturing firms even took over the control of the transportation of their raw materials and finished goods. To a lesser extent, mining and marketing firms moved into manufacturing. Yet, as should be stressed, nearly all such multi-functional manufacturing concerns operated within the confines of one industry: they produced one major line of products and a few by-products. Thus they must be characterized as single-product, yet multi-function industrial concerns.

During the first half of the twentieth century, a new stage in the development was being reached. Many single-product, multi-function industrial enterprises in meeting the needs and opportunities created by a highly dynamic technology developed different lines of products, each with its own set of by-products. From single-product, multi-function manufacturing enterprises, they now grew into multi-product and multi-function industrial concerns, the maintenance and expansion of which required the tackling of more complicated tasks and the solving of more difficult problems than

those involved in operating the older types.[5] The different ranges of decisions in these three types of enterprises – single product and single-function, single-product yet multi-function, and multi-product and multi-function – led to three different types of industrial administration. (*Mutatis mutandis* this was the case also in other lines of business besides manufacturing.)

Modern structure and administration of industrial enterprise began in the United States with the geographical dispersion of such firms. That is, it began when manufacturing enterprises came to possess a number of factories by building or buying new units or by combining with other firms. Geographical dispersion was the initial step in making modern industrial enterprise, because it made necessary the distinction between headquarters and field. This distinction implies that the executives responsible for a firm's affairs had, for the first time, to supervise the work of other executives, those charged with managing the factories or branch offices in the field. The leading men at headquarters also had to coordinate the activities of the several field-units, that is to say, they had to standardize the procedures for these various units. The development of such procedures as well as the planning for expansion, maintenance, or contraction of the activities in the field became part and parcel of setting the goals and objectives of the firm in question.

The new trend gained momentum after the Civil War as the expanding market permitted an increased volume of manufacturing and marketing. In this period, evolving modern industrial enterprise was fortunate in that it could draw on the administrative experience gained in another type of dispersed and single-function enterprise, railroading. In this area the development had started as early as the 1850's, when the rapidly growing railroads demanded far more capital, equipment, and professionally trained personnel than did enterprises typical of the time. They were more complex than other contemporary geographically dispersed single-function firms because of their need for careful, minute to minute, coordination and supervision of the operating sub-divisions. Such control was necessary to assure not only effective use of existing operating equipment, but also the efficient movement of goods and the safety of the passengers.

[5] The term multi-product firm will be used in this paper to refer to one making quite different product lines, each with its own set of by-products, for quite different markets. An example of such a multi-product firm would be a large chemical company which has such different lines as plastics, film, textile fibers, polychemicals, explosives, paints, pigments, rubber products, electro-chemicals, and photographic products.

In the early railroads, the key decisions were usually made by the so-called general manager, a full time specialist, acting in close consultation with the representatives of the large investors. Like the manager of a contemporary textile mill, he made the major operational decisions, but was also responsible for the basic strategic ones, such as those on expansion, rates, and so forth. Moreover, he was one of the very first American businessmen to work out an explicit operating structure, that is, to establish clearly the channels of authority and communication within the organization. Naturally the executives of a railroad, sprawled out over a large geographical area and employing, as early as the 1850's, as many as five or six thousand men, could hardly supervise personally all of their company's activities.[6]

To deal with their new problems, the basic structure of American railroad corporations was worked out during the 1850's. In running a railroad its executive had to supervise three sets of activities — the moving of the trains, getting freight and passengers, and handling the financial transactions involved. Therefore, the organization of most railroads consisted of three major departments, transportation, traffic, and finance.[7] The most important department, transportation, in turn, was divided into three functional sections — transportation, maintenance of way, and maintenance of motor power. Because the moving of trains was the critical task, the officials in charge of transportation had to assume the authority and responsibility for all operating decisions. They became communication centers both on the local and central levels. On the former, namely, the level of the so-called division, which covered usually two to four hundred miles and was the smallest operating unit, headed by a "division manager," those who handled motor power and maintenance of way, as well as the conductors and freight agents, were made responsible to the division's transportation manager. On the central level, the manager in charge of transportation was senior to the heads of the other two departments. He and the division managers, reporting to and receiving orders from the general manager, came to be called line officers and the others to be considered as staff men.

After the Civil War and the great expansion of the railroad networks, the railroad system rather than the individual road be-

[6] Thomas C. Cochran, *The Railroad Leaders, 1845–1890: the Business Mind in Action* (Cambridge, Mass., 1953), chaps. 5–9. Alfred D. Chandler, Jr., *Henry Varnum Poor — Business Editor, Analyst, and Reformer* (Cambridge, Mass., 1956), chap. 7.

[7] Ray Morris, *Railroad Administration*, Appleton's Railway Series (New York and London, 1910), chaps. 2–3.

came the dominating operating organization. The more complex became operations, the more an explicit over-all structure was needed. On such great systems as the Pennsylvania, the Vanderbilt roads, the Illinois Central, the Chicago and Northwestern, the Louisville and Nashville, the Rock Island, the problems of coordination, appraisal, and over-all policy planning became too complex to be handled by two or three men who had operational and other duties as well. Thus it became necessary to devise new organizational structures. These, formed at the time when the great systems emerged in the 1870's and 1880's, had characteristic features in common and consisted of a central office and several operating units, each of which was comparable to a single large railroad company.[8] The Pennsylvania had three such units – the lines east of Pittsburgh, west of Pittsburgh, and those to St. Louis.

The comparable units of the Vanderbilt system were essentially the roads that had existed prior to their absorption, such as the Lake Shore, the Michigan Central, and, after 1889, the Cleveland, Cincinnati, Chicago and St. Louis, and the New York Central. The general managers of these operating units now became primarily concerned with the mechanics of day-to-day activities, while the central office team took over the responsibility for those over-all decisions which we have come to call entrepreneurial. The central office became responsible for assuring effective coordination or traffic flow between the different major operating units. It appraised operating performance and took executive action on such appraisals. The most vital task of the general officers, however, was to consider the major strategies of new construction and of purchases and sales of lines.

Nevertheless as time passed, these senior officers did not stay clear from, but became again increasingly involved in operational duties. There were several reasons for this relapse. First and foremost, as the systems were rounded out and completed, the need to buy and build lessened and strategic problems became fewer. They decreased further as the Interstate Commerce Commission took over rate setting. In addition, systems of appraisal and coordination worked out in minute detail became more and more routinized. Thus by the early twentieth century, the duties of the railroad central offices assumed more of a routine character and the men occupying these positions handled anew operating functions.

[8] *Ibid.*, chap. 4. The following is based on a survey of the annual and other reports of the Pennsylvania Railroad and the New York Central system.

We shall return to this subject in the fourth section of this paper after we have developed theoretical concepts by which we can better explain administrative progress in one period of railroading and administrative relapse in a later one. Suffice it here to sum up in empirical language what is essential from the point of view of this paper. While modern business administration evolved in the field of railroading, the character of that business forbade carrying the achievement to its logical conclusions. For a time, separation of operational functions from strategy determination was attempted. It did not become permanent. Major decisions in either area remained unseparated in the hands of the same top personnel.

We are now ready to turn to the single-product yet multi-function *industrial* enterprise that developed out of the single-product and single-function organization which dominated the American industrial scene until about 1860. A typical industrial enterprise such as a textile works, rolling mill, or shipyard of the ante-bellum days manufactured only one product or a single line of products and sold, usually in bulk, to one sales agent or a very few wholesalers. Even after such an enterprise expanded its operations in the 1870's and 1880's to include a number of geographically dispersed plants, it remained a single-function activity. Twenty years later, however, major sectors of American industry were dominated by great single-product yet multi-function firms. As these consolidated enterprises, the result of vertical integration, came to do their own marketing, their own purchasing from the primary sources and often their own producing of raw materials, *the different functional activities soon became organized into different departments.*

In a typical single-product yet multi-function firm, each functional department was as important as the others. The line and staff set-up of the railroads had little relevance for the over-all structure here. The major departments might have their own auxiliaries like engineering in manufacturing and advertising in sales. But each department head was a specialist and supreme in his own sphere. Usually a vice-president, he had his managing director for dealing with the routine activities of his department. The vice-presidents, as individuals, planned the broader developments within their functionally determined departments. Collectively, together with the president and chairman of the board, they guided the destinies of their vast business empires. For this purpose, the men concerned usually cooperated in so-called executive committees. In making the distinction between vice-president and

manager or managing director, the corporations in question were defining the difference between policy-making and operations.

The executive committees of the single-product yet multi-function enterprises had the same underlying duties as the "general managers" of the railroad systems. But as the nature of their business was different, so was the nature of the appraising, coordinating, and policy-making duties. Appraisal was the least different from that of the railroads. It meant constant concern for the development of increasingly meaningful profit and loss figures. But because more basic and quite different functions were involved, the over-all determination of profit and loss proved more difficult. So, too, the senior officers in those enterprises had to assess performance, not just in one, but in nearly all major parts of the over-all industrial process.

Coordination of the enterprise's various activities was more complex than in a geographically dispersed single-function firm, including even the large railroads. A steady flow of product through the different departments – from the raw materials to the ultimate consumer – had to be assured. The rate of flow depended on market demand. Thus coordination of interdepartmental activity with market demand was necessary if for no other purpose than for making effective use of the company's total facilities and resources. Therefore, coordination became a critical central office function. Yet where the markets and sources of supply remained fairly unchanged, as was true after 1900 in many of the agricultural processing and metal industries, it became increasingly a routine task.

Even more critical was planning for the maintenance and expansion of the enterprise as a whole. This meant that the senior officers had to make basic decisions with respect to the several very different functional activities. The executive committee had to allocate funds among departments and thus decided whether to expand or contract in sales, manufacturing, the control of raw materials, engineering, etc. In so doing, it had to face a new specific difficulty. Since this top committee was made up of department heads, i.e., of functional specialists, the final policy tended to be the result of negotiations and compromise between the different departments. In addition, the top level team, so composed, had neither enough time, nor enough impartial information to handle over-all problems satisfactorily. Its members spent most of their working day on departmental matters, and the information on which the executive committee acted was biased just because it

was framed by these executives in their capacities as functional operating officers. Factual and analytical reports were usually presented so as to favor one of the alternatives under discussion, although this was not always done consciously.

In some single-product yet multi-function industries, just as in railroading, the administrative pattern froze once it had been elaborated. As long as the enterprise in question sold one major line of goods manufactured from one group of raw materials by means of one relatively simple marketing technique and in a comparatively unchanging and steady market, the questions and problems decided by the top team became relatively simple as time went on. This held true of the steel, copper, nickel, and some other metal industries, of meat packing, tobacco processing, distilling, flour milling, and other agricultural processing industries. But resting on one's oars was not possible where the decision-making remained difficult, because markets, production techniques, or sources of supply were changing continuously or rapidly.

Let us sum up what is essential from the point of view of this article: the administration of single-product yet multi-function industrial enterprises pivoted and pivots around functional departments whose heads – specialists – together with the corporation president and chairman of the board formed and form an executive committee. That is to say, the committee, set up to make strategic decisions, consisted and consists of men who were and are themselves rooted in the fulfillment of certain functions. Once more, major decisions in two fields, operations and strategy, rested or rest in identical hands.

By 1910, the *threshold* of a new administrative development was being raised in those industries which came into the orbit of the two new generators of power, the internal combustion engine and the electrical motor. The development gained momentum with the rapid growth of the science-based industries. By 1940, however, it was still concentrated in five major industries: electrical and electronics, power machinery including the automobile, rubber, petroleum, and chemicals. It resulted primarily from product diversification, based on new and expanding technologies. After 1900, Allis Chalmers, for example, moved from building steam machinery to making electrical apparatus and equipment, to developing trucks and other commercial vehicles, and finally into the producing and selling of tractors and farm machinery. International Harvester, after applying the internal combustion engine to farm implements, moved to making tractors and then trucks and com-

mercial vehicles. As new lines were developed in individual enterprises, it became increasingly hard to handle the purchasing, manufacturing, and marketing of each within the same centralized, functionally departmentalized operating organization. Marketing was particularly difficult since the new products went to quite different types of customers.

In the electrical and chemical industries, the continuous development of new products raised even more intense difficulties, for their markets were still more varied. By the mid-1920's, companies like General Electric, du Pont, and Union Carbide had not only moved into the making of quite different producers' goods, ranging from metal products to plastics, but also had begun to sell consumers' goods. The chemical enterprises sold paints, batteries, and antifreeze directly to consumers, and the great electrical firms began to move into the same broad market by making appliances such as refrigerators, washing machines, vacuum cleaners, and stoves. In the rubber and oil industries, there was less strain on the existing functionally departmentalized organizations. Although revolutionized by the coming of the automobile, some leading companies tended to stay within the bounds of a single industry. On the other hand, firms like Goodrich and United States Rubber, when taking up the production of a broad variety of rubber products, including rubber chemicals, and the oil companies developing petro-chemicals, faced structural problems initially comparable to those met by the electrical and chemical firms.

The strategy of diversification and concomitantly the development of the multi-product and multi-function industrial enterprise quickly demanded a new form of organization. The old functional departments were wholly unable to handle the problems arising from the engineering, producing, and marketing of entirely different goods, to say nothing of those of supplying materials for the manufacture of each. *Consequently, as the enterprises moved into the new lines, the administration of each major line was organized on a multi-function basis.*[9] In other words, the major operating unit within the enterprise came to be based on a product line, not a function. Each head of a product division had under his control a full set of functional departments – manufacturing, sales, finance, purchasing, engineering, and research and development. Within the bounds and limits, i.e., the policy established by the central

[9] This same type of organization was developed by the single-line firm, particularly large oil companies, whose activities had become world-wide – or multi-regional – in scope. The head of each regional unit usually managed the several functions of the business and operated quite autonomously within the framework set by the central office.

office, the chief officers of those product units made major decisions. These, however, must be distinguished from those emanating from headquarters.

Within the framework of central policy, the duties of a division head were quite comparable to those of a senior executive of a single-product yet multi-function enterprise. Divisional performance was appraised by the financial success (return on investment) and to a lesser extent by the share in the market which the division chiefs could conquer or maintain. From these units, data flowed continuously to the headquarters in the form of statistics, charts, reports, etc., supplemented by oral communications during visits, both of unit heads to headquarters and of the central office executives to the operating units.

A relatively small team of four to a dozen men, located in adjoining offices in the central headquarters, now became responsible for the enterprise as a whole. The team's functions were appraisal, coordination, and the determination of policy both for the enterprise as a whole and for its multi-function, product-based operating units. In carrying out these duties, the general officers at central headquarters had the assistance of a staff of specialists. Normally, the new advisory staff had offices pertaining to one or several of the major functions to be performed, such as advertising, marketing, production, purchasing, engineering, labor relations, public relations, research and development, and so forth.

In such a structure, then, the top team is an easily identifiable group, and it is recognizable by what it does – by its functions and activities – rather than by the personality traits of its members. It cannot be stressed strongly enough, as did Sombart and other researchers, that such business executives are not necessarily possessed of *charisma*. Personally unknown to the possibly tens of thousands of workers and employees, they need no *charisma* and usually have none. If one of them has this quality, it may show up in his relations to the other members of the team, in his political influence, and in his role in trade associations and the like.

This team communicates directly and interacts only with the men responsible for operations, but is in no way the latters' captive. In making *critical* decisions as to the maintenance and expansion of the enterprise, its alternatives are *sui generis* and not forced on it by the operators. Its decisions are concerned with balancing conflicting interests between the operators whose demands are determined by the products and/or functions for which they are responsible. In making those decisions, the top team has data and

opinions presented by the functional staff specialists at headquarters who have little or no divisional connections or biases.

This new type of organization started immediately after World War I at General Motors and du Pont. A few others followed in the 1920's and 1930's. But it was only with the great economic expansion during and after World War II, with the rapid increase of systematic research and development, and with the demands of the present-day economy and technology, that this modernized, decentralized type of structure became widespread. Increasingly used by multi-product and multi-function firms in the five industries already listed, it was taken over also by some of the older agricultural processing companies, such as Armour or Procter and Gamble, to the extent that they too moved into chemicals and built highly diversified product lines.

We can consider as the characteristic feature of the newest kind of business administration that not only are operations (management) and policy-making separated but that also a middle level which has essentially administrative functions has been inserted. We will return to this matter in the fourth and analytical section of this paper. Suffice it to stress here what should be evident from our presentation that the delegation of functions by the top team has not left it without tasks. New ones had to be and were added to the traditional functions. While, for example, in a single-product enterprise, the question of what to produce is solved once for all with the establishment of the works and reappears only in cases of critical reorganization, the current determination of what to produce becomes a major type of strategic decision in the modern multi-product and multi-function industries.

Goal determination takes the time and energy of the top team. And since its members are no longer responsible for operations and administration, they are psychologically more committed to seeing the concern as a whole. They have the time for planning and, last but not least, they have excellent information. The steady flow of relevant data assembled by the central staff, supplemented by those on the performance of the divisions and by regular visits with the administrators, provides such information as is necessary for policy-making.

A General Motors report of 1937 is of the greatest interest in this context. It stated that the administration was being left to the divisions and the formulation of policy to the central headquarters, and it defined the distinction in this way [10] : "By 'administration' is

[10] *Twenty-ninth Annual Report of General Motors Corporation, Year Ended December 31,*

meant the daily conduct of the Corporation's affairs. By 'formation of policies' is meant both the establishment of the broad principles by which administration is to be guided and the determination of the fundamental concepts of the business. The prime objectives of the business; the scope of its operations, both as to products and markets; the desirability of expansion, horizontally or vertically or both; the provision of the essential capital for its operations, and the question of distribution of its profits as between the amount paid in dividends and the amount retained in the business – all are problems involving 'formation of policies' and illustrate the principle involved."

III

We have painted with broad strokes of the brush the development of American business organization between about 1850 and 1950. From our point of view, the significant finding can be characterized as the evolution of a three-level out of a two-level organization. We have now to look for the tools which were developed parallel with the organizational evolution, for the tools which made the latter possible. Critical and crucial was progress in the field of communication, the more so the closer we come to our own time. As the top team of our day became increasingly concerned with overall policy and strategy and less involved in the day-to-day conduct of the business and as both the operating and administrative structures of the firms concerned became larger and more intricate, the need grew for free flowing and efficient channels of communication between the top team and the various levels of the organization. At the same time and on all levels, more and more precise data were also needed concerning the all but bewildering external situation, particularly in the markets. And naturally, as the business units grew in size and the activities in complexity parallel with the spreading industrialization and urbanization of the nation and as the industrial technique and its scientific basis became more and more involved, effective communication became harder and harder.

Two methods could be used for improving communication lines between the top team and the lower levels or for guaranteeing at least a steady flow of communication. One was to define more clearly the *channels* of communication and authority; the other was to develop more useful *kinds* of information to move through the channels. Thus began systematic, periodic reports, operating sta-

1937, Prepared for Presentation to the Stockholders at the Annual Meeting to Be Held in Wilmington, Delaware, Tuesday, April 26, 1938, p. 37.

tistics, forecasts, and so forth. In this country, the creation of the first precise internal channels of communication and of detailed operating statistics was again the work of the railroads. Contemporary mercantile houses or textile or iron mills had as little need for a detailed reporting system as for formal operating structures, as has been described. Nor would they have been able to get much information on the external situation other than prices current or shipping news.

In the early years of railroad expansion, particularly in the decade of the 1850's, much thought was given not only to formal organization, but also to the development of operating statistics. While many companies defined their lines of communication and authority, in an *ad hoc* way, i.e., as particular problems had to be worked out, some attacked them more systematically. The Erie had a detailed organization chart by 1854; the Pennsylvania a printed organization manual by 1858.[11] In 1889 when the Illinois Central, planning a reorganization, made a survey of twenty-two major railroads, it found that one third of these had printed codes or rules "defining the power and duties of (their) officers."[12] Some others had carefully regulated their organizations, although the result had not been published and was not available for distribution. The rest still operated under informal codes of "usages and procedures," built up over time.

Statistics as first developed by the railroads reflected, like their organizational structure, the basic need of assuring the safe and efficient running of the trains. Hence the roads assembled a wealth of satisfactory *operating* data. Reporting and statistical procedures worked out as early as the 1850's came into common use after the Civil War.[13] Railroad officers were soon to learn the value of these data for determining cost and with it profits, an extremely difficult problem. By the early 1870's, Albert Fink and other railroad men had worked out quite sophisticated techniques for establishing cost per ton mile operated.[14] By the end of the century, the term "control through statistics" was regularly used in railroading.[15]

But this control remained operational rather than anything else. The railroads developed satisfactory data for appraising past per-

[11] Chandler, *Henry Varnum Poor*, pp. 147 ff. *Pennsylvania Railroad Company, Organization for Conducting the Business of the Road, Adopted December 26, 1857* (Philadelphia, 1858).

[12] "Minutes of the Meeting of the 'Board', Appointed by the Resolution of the Illinois Central Board of Directors, May 15, 1889, Held at the General Offices in Chicago, Friday, June 21, 1889, 11 A.M.," from the Illinois Central Railroad Company's files.

[13] Chandler, *Henry Varnum Poor*, pp. 137 ff., 145 ff.

[14] Particularly valuable in this connection is the *Annual Report of the Louisville and Nashville Railroad for the Year Ending June 30, 1874*, written by Albert Fink.

[15] Ray Morris, *Railroad Administration*, has a chapter entitled "Control Through Statistics."

formance, but they did almost nothing to work out forecasts, budgets, or such statistical procedures as might be used to plan ahead. This lack can undoubtedly be explained by the fact that after 1900 strategy and planning became less important in railroading, as described earlier in this paper. The existing data and procedures were sufficient to carry out the major central office functions of appraising the performance of the different operating units and of coordinating traffic flow between the units.

Little of what the railroads had achieved in this field was carried over into the single-product yet multi-function manufacturing enterprise because of the different character of its business. However, by the turn of the century, in working out a specific structure of its own, it also had to develop lines of communication and authority that suited its own needs. In so doing, some of the big enterprises proceeded quite systematically.[16] Questions relating to structure and the means of sustaining it came to be discussed by the end of World War I in the business and industrial literature of the day, such as trade journals and other periodicals and even in textbooks.[17] At the same time, the data flowing through the more clearly defined channels were being greatly improved. In industrial enterprises, unlike the railroads, internal statistics grew out of the need for cost analysis rather than for detailed day-to-day operating information. Effective means for allocating overhead and for determining variable costs led, in turn, to the recognition that variable costs are closely related to volume and that realistic cost analysis called for the determination of expected future as well as past performance.

The needs of interdepartmental coordination also brought pressure on the large-scale enterprise to predict its future in addition to gauging its past performance. Ultimately the total of product flow through various departments depended on demand. The more accurately demand could be forecast, the more evenly the flow could be channelled and thus the over-all organization could be operated closer to maximum capacity. The importance of forecasting demand for the purpose of determining quantities to be produced, of coordinating product flow, and of finding variable costs was greater for firms operating in the mass-consumer market

[16] Some of the large companies which had systematically worked out their structures before World War I included United States Rubber Company, International Harvester, American Smelting and Refining, Westinghouse, Allis Chalmers, General Electric, and Bethlehem Steel.

[17] A brief examination of the first volumes of the journal, *Management and Administration* (New York), which began publication in 1921 is useful in this connection. So also is Leon Carroll Marshall, *Business Administration* (Chicago, Ill., 1921), one of the best anthologies of business literature. Two of the best early books on structure are Russell Robb, *Lectures on Organization* (privately printed [Boston?], 1911), and Dexter S. Kimball, *Principles of Industrial Organization* (New York, 1913), p. 22.

than it was for those making producers' goods, and greater also in the production of consumer durables than in that of consumer perishables. The great meat packers like Armour and Swift could maintain flow by keeping a constant telegraphic communication between the sales managers of the branch houses in the great eastern metropolises and the buyers of cattle and other livestock in the stockyards of western cities.[18] On the other hand, General Motors discovered, right after World War I, that the maintenance of any kind of steady flow and with it the steady use of plant and personnel called first of all for careful forecasts of annual demand and the development of detailed production schedules based on these estimates.[19] Then came the need to work out procedures to make possible the *adjustment* of the forecasts and production schedule to the *actual conditions* of the changing market. This was done at General Motors by obtaining reports every ten days from the dealers as to the actual number of cars sold and also frequent reports on new car registrations. After 1925, the year in which General Motors started basing nearly all its activities on expected market demand, the use of forecasts and of statistics for anticipating market behavior was becoming a fairly widespread practice in American industry.

The needs of planning, like those of coordination and appraisal, equally turned American industrialists to acting on the basis of anticipated rather than past performance. The development and expansion of the different functional activities and the resulting problems of allocating funds among departments and within departments led in many enterprises to the systematizing of appropriation procedures. Senior officers asked that each request for capital expenditure include carefully worked out cost information, indicate an estimated return on investment on the proposed project and the project's relation to the over-all program of the operating unit involved and of the company itself. Soon comparable reports were requested for estimated operating as well as capital expenditures.

Both came to be combined into regular – semiannual or annual – budgets. The budget became both a means of supervision and an expression of policy. As to the former, operating performance could

[18] *Report of the Commissioner of Corporations on the Beef Industry* (Washington, D.C., 1905), p. 21.

[19] Donaldson Brown, "Pricing Policy in Relation to Financial Control," a series of articles appearing in *Management and Administration* in the spring of 1924. Also C. S. Mott, "Organizing a Great Industrial," *ibid.*, pp. 527 ff.; Albert Bradley, "Setting Up a Forecasting Program," American Management Association, *Annual Convention Series No. 41* (March, 1926); and Donaldson Brown, "Decentralized Responsibilities With Centralized Coordination," *ibid.*, No. 57 (Feb., 1927).

be checked against the estimates and proposals in the budget. As to the latter, the budget by its allocation of available funds set the limits on the departmental or divisional activities, and at the same time it indicated the areas where the senior officers believed the company should expand or contract its activities. The budget was and is considered more as a guide than as an unadjustable schedule to be followed without questioning. Budget-making forced firms, as early as World War I, into forecasting the financial and economic conditions outside of the companies concerned, so that financial planning and the allocation of funds might be put on a rational basis. In those same years – those immediately following World War I – periodicals and books on business came to take an increasing interest in the discussion of forecasting, budgeting, techniques of inventory, production, and marketing control.[20]

The coming of the multi-product and multi-function enterprise brought, besides increasing stress on formal structure, a further refinement of existing statistical and other communication techniques. The problem of structure in this new type of enterprise was essentially one of redefining channels of authority and communication to meet the new complexities. In addition, statistical procedures were refined in two new ways. There was the need of getting *precise* information in as *compact* a form as possible. Otherwise the general officers at headquarters would not have found the time to make effective use of it in appraising performance, coordinating the units, and making over-all policy. Secondly, statistical techniques had to be *perfected* so that the *rapidly increasing* amount of all kinds of information on production, purchasing and marketing could be used more effectively on all levels, particularly in the administrative divisions. Also the reports and personal visits between the policy-makers at the center and the administrators on a lower level became more and more important in assuring communication between central headquarters and the administrative divisions. In the development of those new statistical techniques and procedures, the central staff played a more significant role than did the operating units.

These practices then provided the executives with data essential to supervising and maintaining control over their increasingly intricate enterprises in an external situation growing always more complex. Statistical and financial controls made possible the delegation of major decisions to the men in charge of the multi-func-

[20] Again the articles in the early numbers of *Management and Administration* are particularly revealing.

tional product divisions. Through constant objective checks on divisional performance, errors and mistakes of these subordinates could usually be caught before major harm was done to the over-all enterprise. The senior men could take action because they controlled the selection of executive personnel and because, through budgeting, they allocated the funds to the operating divisions. In the way they allocated their resources – capital and personnel – and in the promotion, transferral and retirement of operating executives, they determined the framework in which the operating units worked and thus put into effect their concept of the long-term goals and objectives of the enterprise.

IV

The material presented in the two preceding sections of this paper is of great significance. Focusing his attention on the development of large-scale industry in the last hundred years, the writer of those sections discovered three types of enterprise, designated here as single-function or, in manufacturing, as single-product and single-function, single-product yet multi-function, and multi-product and multi-function. In the course of his investigations, he found that to each type of enterprise there belongs a specific type of business administration functionally related to the tasks to be fulfilled in that type. The three kinds of enterprise and the concomitant kinds of business administration appeared in historical sequence and can, if you please, be considered as stages in the development of large-scale business enterprise and of business administration. Yet, if we do so, we must see them as what they are, namely, ideal types, and so we must heed Sombart's warning. He taught us that any generic type including those of formal organization, once brought into existence in the historic process, does not disappear with the evolution of new ones. Old and new come to stand side by side for decades if not centuries. The forces which brought them into existence and the needs to which they cater are liable to persist for shorter or longer periods as do the forms to which these gave rise. It is doubtful whether the American graduate schools of business administration are aware of this fact in planning their teaching in that field.

When we examine our material from another point of view, it becomes evident that the two kinds of business administration which were developed to fit the needs of the older forms of enterprise are two-level affairs, while that corresponding to the most modern

type of enterprise takes place on three levels. The first two levels are operations (management) on the one hand, and coordination of operations, goal determination, and planning on the other. In the multi-product and multi-function enterprise, however, the top level was split up by the delegation of one of its activities, the coordination of operations of the various functional departments within the major lines of products. The coordination of these functional units, working possibly in the most disparate fields, demanded such special care that it became necessary to give full time attention to administering the operators (managers) of these units. This then became the task of a new, middle level of business administration. For want of a better word, we will characterize it as the "locum-tenential" level, because certain officers other than the top team, but *in lieu* of it, undertake to administer on their own responsibility particular lines of products, a situation which implies supervision and coordination of the functional operators concerned. Thereafter, the top team could specialize on goal determination and planning. Since typically we deal, in this area, with what Arthur Spiethoff has called "historical theory," the theorist of today must take notice of these changes, replacing the distinction between manager and entrepreneur with that between operator (manager), "locum tenens," and entrepreneur, reserving this latter term for those who determine the goal of and plan for the enterprise in question.

One cannot emphasize too strongly that operator (manager), "locum tenens," and entrepreneur are ideal types with which the generic figures of reality must be compared, if analysis of reality is desired. Of course, while a theoretical model must be clear-cut to serve as a useful tool for the analysis of reality, reality itself never is precise. The performers of any one of those critical functions fulfill other, i.e., noncritical ones also. Moreover, those working on the higher levels may also have a hand temporarily or permanently in the performance of the typical functions of the one just below. Vice versa, an able man serving on a lower level may, because of his ability or insight, be called to advise the next higher level. Yet the larger the enterprise tends to be and the nearer to the present time, the clearer becomes the separation of functions.

In any enterprise, including one active on a small scale, two functions *must* be fulfilled: namely, operation and goal determination; or from another point of view, running the whole or some departments, on the one hand, and keeping the enterprise alive on the other. But the functions may remain cojoined. The need for separation appears only gradually as the enterprise grows and/or

becomes more geographically decentralized, i.e., with plants dispersed over a wider area. Under such conditions, the "headquarters" and the "field" part company, the former cutting loose from the actual operations (management). Nevertheless, and absurdly, the top level is still today called "top management" in business and by many business historians as *lucus a non lucendo*.[21] A French adage can also be adapted to our purpose: "*l'entrepreneur* (i.e., the theoretical figure standing for the top-level team) *règne mais il ne gouverne pas.*" On the other hand, the coordination of operations appears only with and is incumbent on large-scale and geographically decentralized enterprises but, under such circumstances, the need appears automatically. Originally, it was included among the functions of the top team, until in the latest type of business administration it was divorced and emancipated on the middle, "locum-tenential" level.

Once the conceptual frame here proposed is adopted, new light can be thrown on several phenomena, two of which are of interest here.[22] First, we can see that the initial steps towards a three-stage business administration was taken in railroading, and in stressing this fact we take up an earlier thread. As early as the 1870's we find the planning entrepreneur at headquarters in railroad enterprises. The heads of the regional units stood for the "locum tenens" of theory, while the heads of the various departments corresponded to the operators (managers) of theory. The relapse into a simpler and, from the point of view of the historian, older type of administration, described earlier, can then be explained by the need for fewer decisions once the railroad net was practically completed with the concomitant and continuous systematization of day-to-day operations. Railroads could return to the simpler two-stage administration with only headquarters and field organized in functional departments.

Secondly, the phenomenon of decentralization comes up for a new interpretation. The term of "decentralization" has been used to denote geographical as well as administrative decentralization. Of these, only the latter type is of interest to us. Within our conceptual frame, administrative decentralization, predicated on the delegation of functions, i.e., the power to make decisions in the delegated field, appears on two levels, the operational (managerial) and the "locum-tenential." The former is historically the older one. In large-scale nineteenth-century enterprise, certain decisions were made at head-

[21] For the origin and history of this phrase see Henry T. Thomas, *Dictionary of Latin Quotations* (London, 1859), p. 209.

[22] The following is a schematic somewhat oversimplified sketch.

quarters, others in the "field." A historically later and different kind of decentralization appeared first in the 1920's when the middle level of business administration, the "locum-tenential," became semi-independent. Consequently, today we find in some enterprises two levels of decentralization, a fact which has only begun to be recognized by researchers. Operators and "locum tenentes" have in common a concern with day-to-day activities, while the top team, being rather remote from these, acts, one might say, from year-to-year and intermittently. But in this connection, one needs to guard against a misunderstanding. Day-to-day actions are by no means synonymous with routine.

The fact that many modern economists are inclined to overlook this difference is an evil by-product of Schumpeter's magnificent vision. Schumpeter is not to blame, but rather those economists who use a figure designed for a model of economic development when they study the theory of business enterprise and of business leadership. To be sure, this does not exonerate Schumpeter from the blame of having used an unnecessarily confusing and impractical terminology. Once he had reached the pinnacle of his prestige, his theory and terminology all but blocked the road to satisfactory insight. Day-to-day actions can, but should not be, taken in the spirit of routine. They can also be tackled in the spirit of innovation and it is high time that the creative operator (manager) and creative "locum tenens" should be studied from this point of view. But again, the term of "innovation," as defined by Schumpeter, is too narrow and untenable even in his own model. There are primary and derivative innovations; there are subjective and objective ones.[23] There are some business innovations which imply new combinations of the factors of production, i.e., change in the production function, and there are very important ones, especially in the field of business organization, which do not. In our scheme, the former are typical of the entrepreneurial, but are possible also on a "locum-tenential" level; the latter can be introduced on any level. As a matter of fact, an enterprise whose day-to-day operations have become mere routine is doomed, while there is also an unavoidable and safe routine element in planning.

To repeat, in the study of business enterprise the difference between entrepreneur, "locum tenens," and operator (manager) is one between tasks to be performed by these various cooperating and complementary figures. This holds true even though it would

[23] Fritz Redlich, "Innovation in Business," *The American Journal of Economics and Sociology*, vol. X (New York, 1950/51), pp. 285 ff.

appear at first glance that they have one task in common, namely, coordination. But a mere word should not deceive us. On every level of the hierarchy, different kinds of coordination take place. On the operational (managerial) level, executives – plant managers, heads of branch offices or groups of product salesmen, purchasing agents, or scientists – are coordinated to carry out a single basic function – manufacturing, sales, purchasing, or research. On the "locum-tenential" level, functions relating to the processing of a major line of products, all the way from the raw material to the consumer, are coordinated. Finally, the top team (the entrepreneur) coordinates the various lines of products in the best interest of the enterprise.

The performance of the various tasks is reflected in the different horizons of the officers in question. The operator (manager) thinks in terms of a single function, the "locum tenens" in terms of a line of products or an industry, while the entrepreneur has the national economy and even the whole world in his mind in making his decisions.

Administrative problems of course are solved by decisions. Consequently, to our three kinds of business administration, there correspond three levels of business decisions: operational (managerial), "locum-tenential," and entrepreneurial, the last term to be used if we stick to the tradition and call the top team "the entrepreneur" whenever we speak in theoretical terms. Correspondingly, as there are three levels of business administration, three horizons, three levels of tasks, and three levels of decision-making, so there are three levels of policy. There is the operational (managerial), "locum-tenential," and entrepreneurial policy. Only in the past could one define and describe the entrepreneur as a policy-maker pure and simple in a business enterprise. We shall return to this matter of policy shortly.

Taking a cue from military language, we can designate operational (managerial) and "locum-tenential" decisions as tactical in contrast to entrepreneurial as strategic decisions. In military science, specifically in Clausewitz's language, tactics implies the leading of forces for the purpose of a battle, while strategy connotes the conducting of battles for the purpose of war. Or, as was taught in German military schools, tactics implies leading forces *in* battle, strategy leading forces *into* battle. If we adapt this terminology to the study of business administration, we could say: strategic decisions are those that allocate the means of production, including available liquid funds and available manpower, particularly skilled

personnel, according to the purpose of the enterprise; while tactical decisions apply allocated means and manpower for the purpose of administering those units which are under the care of the "locum tenentes" and managers. Or to put it more pointedly, the difference is one between the allocation as against the application of means of production.

This then is the place to show how reality, i.e., what the businessman calls "top management," deviates from the ideal type, the model of "the entrepreneur." When a businessman reaches a certain place in the administrative hierarchy of enterprise, he becomes a member of "top management" and remains so until he retires. In theory, however, entrepreneurship, i.e., the participation in the goal-determining and planning team, is actualized only in making a *particular* decision. Outside of the intermittent process of making strategic decisions, any given person is a member of the entrepreneurial team only potentially while the specific entrepreneurial decisions in large-scale business enterprise are made by an ever slightly varying team.

The discussion of decisions has brought us to that of business policy. Here again the development of large-scale industry and of appropriate forms of business administration has been accompanied by historical change. Leland Jenks has shown in another context that in the nineteenth century, problems of business administration were solved *ad hoc*.[24] In such a situation, business policy could develop only slowly; and by business policy we mean a consistent sequence of decisions, even if not recognized as such by the men concerned. The fact of *conscious* policy determination is established in railroading for the 1850's and in industry for the 1880's.[25] Actually business policy seems to be the natural concomitant of geographically dispersed enterprise. In no other way can widely scattered operating decisions be coordinated and supervised. Ultimately, in the course of a hundred years of administrative development, the more or less conscious consistency of decisions has emerged until, at least on the entrepreneurial level, business policy has become equivalent to a master plan. To this master plan, i.e., entrepreneurial policy, "locum tenentes" as well as operators (managers) must adhere, and adherence is enforced by budgetary procedures.

At this point then, we meet a crucial problem. We have designated the functions of the top team as goal determination and

[24] Leland Jenks, "Some Early Phases of the Management Movement," *Administrative Management Quarterly*, vol. V (Ithaca, New York, 1960/61), p. 424.

[25] Ralph W. and Muriel E. Hidy, *History of Standard Oil Company (New Jersey)*, vol. I, *Pioneering in Big Business 1882–1911* (New York, 1955), p. 62.

planning. These functions can be performed only by men who are in control of the concern's capital, allotted and unallotted alike. Thus the function of goal determination and planning is underpinned by that of fund allocation or budgeting (synonymous terms in modern enterprise). As a matter of fact, the first appearance of a budget in business enterprise cannot be overestimated in its historical importance. It is an indicator of emerging bureaucratization of business, the correlative to modern large-scale enterprise. The budget sets a goal, while traditionally business enterprise was satisfied with gauging the result once a year by a profit and loss statement. The function of fund allocation (budgeting) which goes with that of goal determination and planning is the factor which determines the locus of ultimate authority in enterprise.

Not only the authors of this paper, but also other scholars seem to have felt that the concept of "entrepreneur" demands rethinking. G. Heberton Evans has recently made a pertinent suggestion;[26] and Heinz Hartmann has attempted to give the discussion a new bent.[27] With regard to the latter's interesting paper, we find ourselves sitting on the horns of a curious dilemma. We entirely agree with his findings, namely, that it is useful to distinguish between top level and operators both in theoretical and empirical investigations, although we also take cognizance of the new middle level in the administrative hierarchy. We agree that one can and should characterize the top team as the locus of the ultimate authority in enterprise. But we disagree with his starting point and his reasoning. Ultimate authority in business enterprise, as we see it, rests with those who hold the purse strings, and in modern large-scale enterprise, those persons hold the purse strings who perform the function of goal setting and planning. The difference of opinion then is that we explain ultimate authority within business enterprise by reference to a function which implies control over a concern's capital, while Hartmann thinks he can explain it without such a reference, and so is led into metaphysics. Metaphysics, however, is not needed when the problem is how to explain, not the acceptance of business enterprise in capitalistic society, but the acceptance of ultimate authority within socially accepted business enterprise. Only in the former case is a sanctioning reference to property rights demanded.

Whoever joins an enterprise in capitalistic society does not ques-

[26] G. Heberton Evans, Jr., "Business Entrepreneurs, Their Major Functions and Related Tenets," *The Journal of Economic History*, vol. XIX (New York, 1959), pp. 250 ff.

[27] Heinz Hartmann, "Managers and Entrepreneurs: A Useful Distinction?", *Administrative Science Quarterly*, vol. III (Ithaca, New York, 1958/59), pp. 429 ff.

tion that he must obey; but to make him obey more willingly, i.e., cooperate, a specific department, that of personnel relations, has been established in modern large-scale concerns. It uses propaganda methods and among its other tasks builds up the participants in "top management" just as an office-seeking politician is built up in the minds of the voters. But if the top team actually needed to be legitimized *within* the enterprise by referring to the stockholders for authorization, the latter would be the real locus of ultimate authority. This they are not, as Hartmann himself pointed out. Stockholders have only a negative (veto) power, not a positive one. They can direct the top team not to do certain things, but they cannot force it to do others. Only in very special cases can they overturn a particular "top management." Therefore, we go along with and, so we think, fortify Hartmann in what seems to be his purpose, namely, in seeing the ultimate authority in enterprise, as far as administration goes, as resting in the top management team, which is in fact self-perpetuating.

Our findings can be summed up thus: if in theoretical contexts we wish to conceptualize the top team which keeps modern large-scale business alive, we cannot start from the difference between innovation and routine. Nor can we see as essential characteristics of the top team the making of decisions or the determining of policy. Like some earlier theorists, we can see as the criterion the making of *strategic* decisions, provided it is well understood what we mean by "strategic." We can and should start from the specific functions which the top team performs – goal determination, planning, and budgeting. We can and should stress that the team holds the ultimate authority in the enterprise concerned. If then, in line with tradition, we wish to use the term "entrepreneur" to designate that top team, here are the elements to define it.

Oil for the West of England, 1889-1896
A Study in Competition

As the oil industry grew, comfortable family firms, hitherto untouched by the ferocities of competition, found their position under attack and their independence menaced. The painful, inexorable process of substituting a new economic order for an old is here detailed from the viewpoint and records of one of the dispossessed.

by W. J. Reader
LONDON, ENGLAND

I

This article is based on a collection of letters and papers from the offices of J. L. Thomas & Co., Ltd., of Exeter, England.[1] Like many collections of commercial papers, they were obviously not preserved through the ordinary routine of filing, but because they were documents in a matter of importance to the firm. They record a struggle to capture the market for kerosene in the south-western counties of England, and they illustrate in detail one episode of the battle between Standard Oil and the exporters of Rus-

[1] These papers now belong to Unilever Limited, to whom I am indebted for permission to use them.

sian kerosene which is described at large in Professor and Mrs. Hidy's *Pioneering in Big Business*.[2] The fighting in the West of England was vigorous, fully in the tradition of the monopolistic ambitions of the giants of the oil industry, and not inhibited in the slightest degree by any overnice regard for the conventions of "fair competition."

The export trade in kerosene, to the markets of the world generally, was of the utmost importance to Standard Oil. During the 1880's, about four fifths of the value of American petroleum exports was in kerosene, and it took up more than half the value of petroleum refined in the United States. Standard Oil had accordingly built trunk pipelines to the Atlantic seaboard and had concentrated manufacturing power there, especially at Bayonne, New Jersey. The reward of their efforts was that Standard Oil handled about 84 per cent of the exports of American kerosene.[3]

Much the largest market for American kerosene was Europe, which in 1882 took about 68 per cent by value of all kerosene exported from the United States. In Europe, Germany took most, but second came the United Kingdom, which in 1882 took 1,688,900 barrels of 42 gallons each. During most of the 1880's, Standard Oil sold its goods for export either to American exporters or to European importing firms, some of which had offices in America. Thus, between 1879 and 1888, Standard Oil refined products for the United Kingdom went to Henry Funck & Company who, in turn, sold to wholesalers like J. L. Thomas.

This system worked well enough in quiet times, and up to 1883 Standard Oil had the United Kingdom pretty much to itself. But the system gave the company no control whatever over its products once they left America, and therefore no control over marketing policy in countries overseas. Unless Standard Oil's customers, and its customers' customers, were exceptionally good marketing men, the company was left vulnerable to aggressive competition, if it should come. And it came.

Competition came from three directions. First, there were American producers outside the Standard Oil combination, especially those backed by the Mellon family, and of those this article will have something to say. Secondly, there was competition from Scottish shale oil, which developed during the 1880's until by 1886

[2] Ralph W. and Muriel E. Hidy, *Pioneering in Big Business: History of Standard Oil Company (New Jersey), 1882–1911*, vol. I (New York, 1955). Competition in the West of England is referred to in a footnote on p. 748, n. 27, of which this article is an expansion.

[3] *Ibid.*, p. 123. The first section of this article is based on Hidy and Hidy, *Pioneering in Big Business*, chap. 5.

Scottish shale oil was being used for about two thirds of the candles made in Great Britain and also for kerosene. Thirdly, and far more formidable than either of the other two, there was competition from the great Russian oilfields in the Caucasus.

That industry had been building up during the 1870's, but the real onslaught on world markets, including the United Kingdom, dates from 1883, when a railway was opened from Baku to Batum on the Black Sea, whence tank steamers could carry the oil away. Russian oil was about equal in quality to American, and the producers had several advantages in competition, including lower costs of production and of labor. The industry had attracted very able businessmen from Western Europe, notably the Swedish brothers Robert and Ludwig Nobel who, by the late 1880's, were making about one third of all Russian kerosene. And the Rothschilds, through their Paris house, had gone into the Russian oil business as well, paying special attention to the marketing end of it.

Russian oil came to the United Kingdom by tank steamers and was distributed by a system, borrowed from America, of tank cars, bulk stations and tank wagons. In 1883, when Russian oil first began to come in, American oil had nearly the whole of the United Kingdom market for kerosene. By 1888, only five years later, Russian oil had 30 per cent, and in that year both the Rothschilds and the Nobels moved to strengthen yet further their grip on the market. The Rothschilds set up two English companies, one to import Russian oil and the other to distribute it. The Nobels appointed the firm of Bessler, Waechter & Company, which will figure largely in this article, as their exclusive agents in the United Kingdom.

In 1888, on the side of Standard Oil, Benjamin Brewster retired. In spite of the threatening state of affairs in the United Kingdom, he had been against any radical change in the export organization and, in particular, against the setting up of a company in the United Kingdom, owned by Standard Oil, which could bring some force to bear on marketing methods. Other Standard Oil executives were convinced that such a company was what was needed, and as soon as Brewster had gone, they set about organizing the Anglo-American Oil Company Limited.

The capital of the new company, which was incorporated in April, 1888, was £500,000, wholly owned by the Standard Oil group. There were seven directors, three English and four American. One of the managing directors, J. D. Jamieson, was English, but another, from 1890 onwards, was James McDonald, who had been vice president and treasurer of the Consolidated Tank Line Company

of Cincinnati. Another director, and the one who was to have the most to do with the West of England firms, was Frank E. Bliss, who had been head of the Gasoline and Naphtha Department of the Pratt Manufacturing Company, another Standard subsidiary.

In Anglo-American, its first overseas affiliate, Standard Oil forged a weapon intended to subdue the English market in the shortest possible time, and it was run with a single-minded determination to get rid of all competitors, especially the importers of Russian oil, with their impressive background of European high finance. The scene was therefore set for a business battle of the first importance and on the largest scale. In that battle, the J. L. Thomas firm and its associates – other oil merchants in the West of England – had a certain tactical importance which they did their best to preserve and even to exploit. But it was too big a field for small firms in country towns to operate in with success or with safety. They did not lack business sense, but they simply were not strong enough. Looking mainly through the eyes of J. Langdon Thomas, senior partner of J. L. Thomas & Co., we shall see what became of them.

II

The West of England and the coastal parts of South Wales made a natural trading area as long as water transport was the main way of carrying bulk goods. There is the long coastline of the south-western peninsula, with its harbors, to serve the southwestern counties of England. There is the northern coast of the Bristol Channel to serve South Wales. There is the basin of the River Severn to carry the trade of the Bristol Channel deep inland. There are the deep-water ports of Bristol, Plymouth, and Cardiff looking outwards to foreign trade.

The oil business of the 1880's and 1890's depended heavily on these three ports, and especially on Bristol. The Port of Bristol had recently put out an arm to the deep sea by the building of Avonmouth, on the Bristol Channel, a few miles downriver from Bristol itself, and there, by the end of the 1880's, tanks for the bulk storage of oil had been built. There were port installations, too, at Plymouth – they belonged to J. L. Thomas & Co. – but they were not on the Avonmouth scale.

In all these three ports, there were firms of merchants who dealt in oil along with other commodities. J. L. Thomas & Co., although its headquarters were at Exeter and not on the seaboard, was a firm of this type. Besides selling oil, Thomas & Co. sold lamps to

burn it in. The firm dealt in tallow, too, and during the 1890's it began to make soap, not in great amounts, but in quantities sufficient to alarm the much larger [unrelated] soap firm of Christr. Thomas & Brothers of Bristol. Its customers for oil were the shopkeepers of the towns and countryside, but the main user of its goods was the housewife. Other, bigger buyers – railway companies and gas companies – occasionally appear in the records – but the oil merchant's bread and butter really depended on the lamps and stoves of the late Victorian private household.

The evidence of Thomas' papers suggests that about 1890 there were seven or eight merchant firms who were important in the West of England oil trade. They regarded as their own territory the counties of the southwestern peninsula, South Wales, and the basin of the Severn about as far north as Shrewsbury, with an insecurely held offshoot into the Black Country. They took these delimitations seriously, just as soap firms, at the same period, were very careful of geographical boundaries in their trade,[4] and the agreements which the oil merchants made with each other, like similar agreements among the soapmakers, were often accompanied by maps to show precisely where their terms should apply.

By the end of the 1880's, indeed, the distributive trade in oil in the West of England seems to have been pretty closely organized, no doubt with a view to keeping life comfortable for the established operators and making things as difficult as possible for interlopers. The ferocities of competition did not stretch as far down the line of supply as these West of England family firms, although they were not unaware of what went on and they were hopeful of exploiting the situation to their own advantage. They had a trade association – the West of England Petroleum Association – and through it they could make collective contracts for buying oil. What they really liked were contracts which bound the importer to deal with them alone, but left them free to buy elsewhere if they chose.

Thomas' papers cover the West of England merchants' dealings with two importing firms, one trading mainly in American oil and the other in Russian. The firm with the American connection was C. T. Bowring & Co., which, during the period we are concerned with, was still largely in the hands of the Bowring family. The firm had offices in London and Liverpool – another important center of the oil trade – and in New York they were partners in Bowring & Archibald. Their American supplier was the Bear Creek

[4] C. H. Wilson, *The History of Unilever* (London, 1954), vol. I, pp. 59–71; and W. J. Reader, "The United Kingdom Soapmakers' Association and the English Soap Trade" in *Business History* (Liverpool University Press), vol. I (June, 1959).

Refining Company of Pittsburgh, which in 1889 was outside the Standard Oil group and bitterly hostile to it. The chairman of Bear Creek was W. L. Mellon, and his family held some, if not all, of the capital.[5]

For Russian oil, the West of England merchants depended on Bessler & Waechter. In 1888, as part of their campaign to conquer the British market, the Nobels appointed Bessler & Waechter as their agent (at the same time that the Rothschilds were setting up companies for the import and distribution of *their* brands of Russian oil), and Bessler soon turned its attention to the West of England. In the spring of 1889, the Bessler firm offered the West of England Association a contract of precisely the form the Association liked.

A draft of the agreement, dated May 9, 1889, has survived among the Thomas papers, and the agreement evidently came into force on or about that date. Bessler & Waechter bound the Nobels to grant the Association the sole right to import Nobels' oil to Avonmouth for five years. But, as Bessler's solicitors carefully pointed out, the Association, for its part, was left "free to deal with other Oil," which was exactly the position the Association sought. It agreed to take, in the words of the draft, "at least as much Refined Petroleum as a Steamer of about 3,000 tons Petroleum carrying capacity running regularly between Batum and the United Kingdom will carry every alternate journey."

There can be little doubt that the reason why Bessler made this agreement in such a form was that the West of England merchants controlled, or were about to control, oil installations at Avonmouth, so that they were able to guarantee the storage and distribution of any oil they contracted to buy. The battle between Russian and American oil interests in the United Kingdom was very much a matter of organizing storage and distribution, and this agreement represented a point gained for Russia, insofar as it kept American oil out of the West of England merchants' tanks at Avonmouth.

These tanks were set up by a company formed a little later than the date of Bessler's contract – on July 31, 1889 – and undoubtedly contemplated when that contract was signed. This company was The Bristol, West of England & South Wales Petroleum & Storage Association Limited, and it was set up by seven firms, evidently all members of the West of England Petroleum Association with whom the agreement for Russian oil had been signed. Of the founder members of the new company, four were Bristol firms (Colthurst & Hard-

[5] Hidy and Hidy, *Pioneering in Big Business*, pp. 283, 748, n. 27.

ing, Francis F. Fox, John Hare & Co., and Pritchard & Co.), one (Bird & Son) was a firm in Cardiff, and the remaining two (E. James Rowe & Co., and J. L. Thomas & Co.) were both in Exeter. J. L. Thomas' branch at Plymouth was also included, separately, in the membership.[6]

The company had an authorized capital of £50,000 in £10 shares. Among the "objects" set out in its Articles of Association two are especially significant:

> **1. To enable the members of the Company, by the adoption of co-operative arrangements, to obtain Petroleum and other Oils and products on favourable terms.**
> **2. To establish and maintain tanks, reservoirs and stores, refineries, and pipes and conveniences for the reception, storage and transmission, and delivery of Petroleum and other Oils and products.**

The tanks were built on land belonging to the company at Avonmouth. They were undoubtedly intended to give the West of England merchants a strong bargaining position in the battle between Russian and American oil which was developing around them.

Certainly the Bowring firm, looking at the matter from the American point of view, seems to have thought the new Association strongly placed. It found out the terms of Bessler's contract, with its right of exclusive import and no corresponding obligation on the Association not to buy elsewhere, and offered a draft agreement, dated March 24, 1890, of which George E. Bowring, writing to J. Langdon Thomas, said "the terms are as nearly identical with the Russian contract as I could make it." It would have given the Association, for five years, the sole right to import Bear Creek oil into Avonmouth, but it would not have barred it from dealing in other oil. The Association was asked to take "at least as much petroleum as a steamer of about 3,200 tons petroleum carrying capacity running regularly between the United States and the United Kingdom will carry every alternate journey."

The Association turned down the proposal.

This was a serious blow to Bowring, because Standard Oil's Anglo-American Oil Company, formed in the spring of 1888, was making that firm exceedingly nervous. Bowring & Co. knew that if it did not get a contract with the West of England Association, there would be an opening for Anglo-American, and Bowring probably had a shrewd idea of the kind of contract Anglo-American

[6] Hidy and Hidy (at p. 748, n. 27) say that the Association had members in Gloucester and in Somerset, but there is no record of them in the Thomas papers.

would make. It would almost certainly bar all other suppliers.[7]

George Bowring did his best to frighten Langdon Thomas. In a series of letters which he wrote in the early 1890's, he pointed out – quite truthfully – that Anglo-American, with its distribution depots, its tank cars on the railways, and its tank wagons in the streets, was really a supplier in competition with the Association. If the Association contracted with Anglo, rather than with Bowring, there would come a day, George Bowring said, when Anglo-American, having built a depot at Avonmouth and arranged to distribute oil through the West of England, would tell the Association " 'that the exigencies of the trade force them [the Anglo] to distribute their own oils,' the demand for which has in the meantime been fostered by the West of England Association." Bowring urged the Association "to boldly take the position as it now stands and elect to buy in the cheapest market from whoever will sell the best & cheapest oil in the most economical manner and treat the Anglo as they actually are viz: a competing firm who have not in many ways the advantage that the Association have." When the Association turned him down, Bowring commented [and I preserve his punctuation]: "It is odd that some members of the Association do not see what wolves in sheeps clothing the Anglo are. The only way they will ever lie down in peace together is as the lamb does after being eaten by the wolf inside him."

Bowring & Co. shared to the full the feelings of moral indignation with which so many Americans said they regarded Standard's triumphant progress. The Bear Creek Company at one time proposed a new pipeline and refinery, of which Bowring wrote ". . . the whole thing is a very important addition to the ranks of refineries outside the clan of the S O Coy, and it is a new assurance that there will always be a good healthy outside opposition to those hated monopolists, who would, if they could, 'hang draw & quarter you & ourselves *et id omne genus*.' " For their part, at the same time, Bowrings were doing their best for the "good, healthy opposition" by trying to get Standard's trademark *Royal Daylight* struck off the register. "Evidence we have," wrote W. B. Bowring to Langdon Thomas in August, 1892, "leads us to think it is most probable we can do so & we certainly mean to try."

Bowring's bid for a contract in the West of England failed in the spring of 1890. In the autumn, Anglo-American offered to Thomas – and, no doubt, to other members of the Association – a contract

[7] Cf. contracts made later in France and Scandinavia (Hidy and Hidy, *Pioneering in Big Business*, pp. 242, 248).

of exactly the form which Bowring probably feared most. They wished to bind Thomas to deal only in "brands . . . owned or controlled by the S O Co., all of which they will purchase from the [Anglo-American] Company." The only exception was to be oil sold under Thomas' own brand *Alexandra.* The quality of that oil was to be defined, and Thomas was to be free to buy it where the firm liked. It was not to buy any Russian oil at all except its share under the Association's contract, and after the end of that Thomas would be stopped entirely from dealing in Russian oil. Anglo-American was to undertake to defend Thomas against Russian or "outside American" oil by selling the firm oil at a competitive price. The contract would lapse if six months of selling Anglo-American's oil at cost failed to drive competitors from the field.

The contract was to operate within an area "which has been mutually agreed as belonging to the Firm," and it was marked on a map. In that area, Thomas was to be required to do its best to promote the sale of Standard brands. Anglo-American was to agree not to sell oil except to Thomas and three other named firms – none of which were to have better terms than Thomas.

A more thorough-going blueprint for monopoly would be hard to draw up. Thomas turned it down, and it went no further than a draft. There is no doubt that it was simultaneously offered to the other West of England firms and that they turned it down, too. They had the Russian contract and their base of operations at Avonmouth, and they seem to have felt secure.

Their security was false. Anglo-American went into competition as suppliers, just as Bowring had prophesied. By 1892 Anglo-American had bulk storage facilities of its own at Bristol, besides other depots covering the rest of the country – including Liverpool, from which it could invade the extreme northern end of the Association's territory. Anglo's tank cars were on the railways, and its barges on the rivers – including the River Severn. Anglo-American was a firm that the small man would find very hard to defy.

In the autumn of 1892, Anglo-American was back on the doorstep in the West of England, approaching the Association rather than its member firms. By September, Anglo seems to have come close to persuading the Association not to renew Bessler's contract for Russian oil. Langdon Thomas revealed this to W. B. Bowring, apparently in trying to find out whether the Bowring firm, either on its own or together with Bessler & Waechter, would outbid Anglo-American. Bowring hinted to Bessler what was about to happen – he could hardly do more, without breaching Langdon

Thomas' confidence – but the only response was a refusal to give up the Association as long as the Association would stick to Bessler. Bowring & Co. was by no means dismayed – it seems to have felt itself stronger than in 1890 – and W. B. Bowring wrote to Thomas "all I can say is if the W of E Association tie themselves to the Anglo & are prevented from dealing in Russian we want no better opportunity to push our trade & are quite ready to *go it alone*. If you care to join 'all right.' If you don't why the position is in our opinion good enough." Bowring & Co. had evidently realized the strength of the opposition to Standard Oil and was preparing to seek its own advantage directly from the battle of the giants. Both the main opponents, by now, had distribution arrangements of their own and the little firms were ceasing to count.

Anglo-American, however, still found it worthwhile to make contracts with the members of the Association, who were almost ready to sign in December, 1892. The surviving draft, of that date, is in the name of Colthurst & Harding of Bristol, but there is no doubt that Thomas and the other firms were presented with an agreement in identical terms.

It was a pure monopoly agreement. The firms signing it were bound "not to purchase any Refined Petroleum, Benzine, Naphtha or Gasoline except from the Anglo-American Oil Company, and not to sell any not purchased of that Company." All sales were to be "under the existing brands of the Anglo-American Oil Co., Ltd. or such other brands as they may from time to time direct," and the only exception was to be for private brands that the firms signing the agreement were to be allowed to sell "in such cases as they cannot induce buyers to take the Company's brand 'White Rose' or other brands of Water White Oil."

Against all this, Anglo-American undertook to sell only to members of the West of England Association and to two Plymouth firms who did not belong to it. Anglo also undertook to fight its customers' battles against Russian oil, even to the extent of supplying Russian oil itself "whenever they [the Anglo] so elect." The area covered by the contract was marked on a map (which has disappeared from Thomas' papers), and Anglo-American flatly refused to recognize the Association's claim to 14 towns within reach of the Anglo-American depot in the Black Country. "Your Assn," said Anglo-American, "is by no means holding the trade of these Towns, and by far the greater portion of it is being supplied by our Liverpool competitors."

But the agreement went further yet. Anglo-American took the

right to fix the prices at which the Association should sell, and even dictated the discount (2½ per cent). The members of the Association were to have a commission of 10 per cent on sales, and that was "to cover all outlay . . . and to be in lieu of any profit of theirs in relation to purchases and sales." In other words, the members of the Association were to cease to be independent oil merchants. They were to become agents for Anglo-American, bound very strictly to that firm. Even then, Anglo-American expressly kept for itself the right to sell direct to gas companies and other large buyers, provided they sold not less than 50 barrels at a time.

This agreement was part of Standard Oil's response to the energetic competition of other concerns almost as large as itself. The agreement shows, in detail, how Standard set about reorganizing and invigorating its marketing methods outside the United States, relying on experience which it had already gained at home and on exporting devices which it had already proved successful. The agreement was closely watched from New York, and it had to be sent there for final ratification. It was to run for seven years from March 31, 1893, subject to twelve months' notice from either side. Clause 15 provided that "the existence of this Agreement shall not be divulged to anyone not parties to the Agreement." Was someone, perhaps, a little nervous of public opinion?

Another agreement quickly followed – for the sale to Anglo-American of the shares in the Bristol, West of England & South Wales Petroleum & Storage Association Limited, which meant, of course, that the depot at Avonmouth passed under the control of Standard Oil. At about the same time, Anglo-American bought J. L. Thomas' port installations at Plymouth. What induced either the Association or J. L. Thomas to sell does not appear from Thomas' papers, but it can hardly be doubted that the West of England merchants had found the pressure of Anglo-American's own distributive arrangements too strong for them. The merchants may also, of course, have been offered a very good price. Anyhow, their attempt to use the Avonmouth depot as a bargaining counter, in an attempt to play off the Russian side against the American, seems to have failed completely, and by the spring of 1893 it had passed out of their control. For the look of the thing, Thomas Harding, of Colthurst & Harding, stayed on as chairman of the Association, "but this of course," as Anglo-American's London solicitors observed, "is quite nominal."

Anglo-American took charge of marketing policy even before its agreement with the West of England firms came into force. Frank

E. Bliss wrote to Thomas Harding to say that up to March 31, 1894, his members would be "authorized to make forward contracts for 'Royal Daylight' oil in barrels . . . at fivepence halfpenny (5½d.) less 2½% ex Avonmouth." This, he went on, "is to be the minimum price and we shall expect you to get better prices whenever this is possible. At the same time we are very desirous for your Association to do an increased volume of business this year, and especially to displace Russian oil to the fullest extent possible. Do not therefore lose sight of these two objects when endeavouring to get a higher price . . . for 'Royal Daylight' oil."

In April, 1893, Bliss was telling J. L. Thomas how to compete with Russian oil. It was only a farthing a gallon cheaper than *Royal Daylight*, but that was enough to attract buyers. Bliss thought that if Thomas were to offer an American brand for one eighth of a penny above the Russian, that would be enough to persuade dealers to take it in preference, and he told Thomas to try offering Standard's *Crown Diamond* brand. If all else failed, Thomas was himself to offer Russian oil.

These tactics were aimed at the Bear Creek Oil and Shipping Company, which was offering Russian oil in Thomas' territory. This was a company, managed by Bowring, in which the Bear Creek Refining Company held 29 per cent of the capital.[8] Evidently Bowring & Co. was making good its threat to "go it alone." Certainly the trade in Russian oil was being pushed with great energy and the members of the Association, to their alarm, found small tank steamers delivering Russian oil at unheard-of places. They were going round the coast putting in wherever they could, at Southampton, Portsmouth, Poole, Plymouth, ports on the Bristol Channel, and Bristol itself, and the Association complained bitterly of their activities.

Anglo-American was supposed to protect the Association against this sort of thing. In the Association's view, it was falling down on the job. The members of the Association can hardly have known much about the high politics of the oil industry, and they probably had no idea that, from about 1893 onward, affiliates of Standard Oil, harassed by Russian competition, were themselves coming to deal in Russian oil, which may have had something to do with the strength of Russian competition in the West of England and the apparent dilatoriness of Anglo-American in dealing with it.

Sometime between 1893 and 1896 – probably in 1895 – there was a meeting in Bristol between Anglo-American and members of the

[8] *Ibid.*, pp. 250, 748, n. 27. The Mellon family also held shares.

Association, who wanted to know whether Anglo-American would put up oil tanks on land which could be leased from the Dock Company at Bristol. The management of Anglo-American had been very slow in saying what, if anything, it was prepared to do, and the shorthand-writer's notes of the meeting (undated) suggest that tempers, rather strained when the meeting started, rapidly rose as it went on. The gathering turned into a protest against Russian competition. "We are losing," one member of the Association said, "and the Russian is taking our ground." What was Anglo-American going to do about it? "We want you to help us to keep our position," said Fox, of Bristol, "and by helping us you will help yourself." All Bliss would say was, "I am really afraid to reply to New York." The meeting broke up with nothing decided and each side distrustful of the other.

There is every indication that Anglo-American had very little time, now, for the West of England Association. It represented, after all, a comparatively minor engagement – which Anglo-American had won – in the continuing struggle against the Russian interests. The little fight was over; the incident might as well be forgotten. In March, 1896, the Association wrote to Anglo-American about an agreement between Anglo-American and the Bear Creek Oil and Shipping Company. The Association had been asked to consent to the agreement, and wanted to see the clauses which affected its interests. It was pointed out that "the members of the Association are in no way protected or indemnified against any possible infringement of the agreement by the Bear Creek Oil & Shipping Company, nor have we any guarantee that a further quantity of American Oil will not be introduced into our territory by the Bear Creek Oil & Shipping Coy, or some other outside firm." The Association ended by repeating, at length, its complaint of "the continued and serious loss that the members of the Association are suffering from the unchecked competition of Russian Oil . . . our Association thinks it imperative that you should put us in a position to meet this competition."

The Bear Creek Refining Company, parent of Bear Creek Oil and Shipping, had been bought by Standard Oil in 1895. This transaction had nothing whatever to do with the West of England – it was apparently part of a campaign to shut off a competing supply of crude oil to French refiners – but, as a consequence, Anglo-American had taken over the Mellons' shares in Bear Creek Oil and Shipping.[9] No doubt this was the substance of the agreement

[9] *Ibid.*, pp. 250, 283, 748, n. 27.

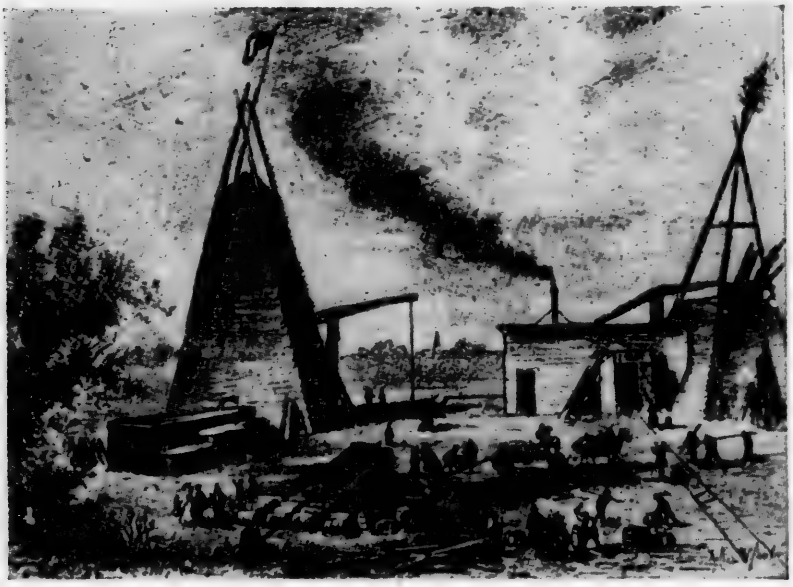
which the Association was being asked to consent to, and which made it so nervous – justifiably nervous, because it was Bear Creek Oil and Shipping which had been so enterprising in pushing Russian oil into small West of England ports.

Anglo-American wasted no time at all on the Association's anxious letter. Bliss replied to it. He refused to disclose the agreement with Bear Creek – can it have contained embarrassing provisions about the sale of Russian oil? – conceded one minor point which the Association had raised, said nothing at all about Russian competition, and suggested that "it might be just as well if further correspondence in regard to this 'Letter of Consent' were to be carried on by . . . our solicitors."

The pill must have been all the harder for the Association to swallow because the management of Bear Creek was left with Bowring, who had warned the West of England merchants, years before, what Anglo-American might be expected to do to them. Things had turned out much as Bowring had said they would, and much as anyone familiar with Standard Oil's contemporary reputation in America might have predicted. Standard, through Anglo-American, had entered the battle rather late but, once in, the organization had kept its eye firmly on the main opponents. Anyone smaller who got in the way had been treated as the minor local difficulty which he was. The battle was by no means over yet, but the West of England merchants had lost what small importance they once had enjoyed. Thomas moved away from the oil trade toward soap-making and the processing of bones and fats, and the firm survives today within the Unilever group. Colthurst & Harding, similarly, changed the pattern of its activities and today manufactures paints and varnishes. The Bowrings stayed in oil, but they were in a different class from the provincial firms, and it may be that George Bowring, writing of Anglo-American to Langdon Thomas in 1889, was not far off the truth when he predicted that ". . . the monopoly at which they avowedly aimed . . . would mean the extermination of the oil merchants of England *as petroleum oil merchants*" [present author's italics].

"Monopoly" is a loaded word, and Bowring was using it as a bogey to frighten Langdon Thomas. In fact, it was something which Anglo-American, whatever its intentions may have been, never managed to attain. Competitors saw to that. What Anglo and its rivals did succeed in was to set up a new distributive system for the oil trade in the United Kingdom. They destroyed the old, comfortable, and – one suspects – rather inefficient local markets and

substituted a national organization. The same thing was going on in other trades at the same time – W. H. Lever's activities in the soap trade are one example – and it was something which was bound to happen as the economy of the United Kingdom grew and attracted the giants of world business. Economic change is rarely painless, and certainly the oil companies were not overmuch concerned to conduct their operations under anaesthesia, but even the most bigoted opponent would find it hard to deny that in this particular field of activity Standard Oil and the rest of the giants were building something which, on balance, would serve the community better than that which had to be destroyed to make way for it.



A. A. Berle, Jr. Student of the Corporation 1917-1932*

In the intellectual career of one precocious scholar may be traced the course of jurisprudence and philosophy that joined law with economics, dealt with the fundamental problem of democratic restraints upon corporate power, and influenced in basic ways the direction of the New Deal program.

by Richard S. Kirkendall

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Franklin Roosevelt, in one of his boldest speeches in 1932, called for "the development of an economic declaration of rights, an economic constitutional order."[1] The call was made in San Francisco at that city's famed Commonwealth Club. Behind the call stretched the intellectual development of one member of the candidate's "Brain Trust," Adolf Augustus Berle, Jr.

Berle established himself in that election year as one of the nation's leading students of the corporation. An examination of the evolution of his thinking on that subject casts a small light upon the significant question of

* This article, in somewhat different form, was presented at a meeting of the Southern Historical Association in Tulsa, Oklahoma, on November 10, 1960.

[1] Samuel I. Rosenman, ed., *The Public Papers and Addresses of Franklin D. Roosevelt* (New York, 1938), vol. 1, p. 752.

the roots of the New Deal. Berle's development indicates some of the ways by which the New Deal grew out of the Social Gospel, the new jurisprudence, institutional economics, and the managerial revolution. An examination of his development also suggests that the relationship between Roosevelt and his Brain Trust was not a one-way relationship. He influenced as well as was influenced by this Brain Truster.

The Social Gospel had influenced Berle at a very early stage in his intellectual growth. His father, a prominent Congregational clergyman, had contributed to the early efforts to adjust Protestantism to the new urban and industrial realities of American life. He had promoted reform legislation in Massachusetts and served as a professor of applied Christianity at Tufts. Young Adolf, who was born in 1895, could not avoid the influence of the father's point of view, for the cleric was a strong believer in the value of early and rigorous education in the home. His educational methods were so successful that Adolf, Jr., entered Harvard at fourteen and received three degrees, including the LL.B., by the time he reached twenty-one! The influence of the father left a lasting mark on the son's world view. The younger Berle reflected his father's concern about the plight of the urban poor by working, for example, in the Henry Street Settlement.[2] More important, the younger man's final solution to the problems posed by corporate power stressed the need for a sense of social responsibility – a social conscience – in the business community.

New developments in legal philosophy also influenced Berle early in his career. A new jurisprudence had emerged while he was but a boy. Intellectuals, living in the dynamic urban industrial society and influenced by the hypotheses of the Darwinians, had rejected philosophies that looked upon legal principles as unchanging and unaffected by their environment. The colorful judge with the cavalry officer's moustache – Oliver Wendell Holmes – had done more than anyone else to develop new legal theories for Americans. He had looked up from his French novels long enough to advise the law student to master economics. More rigorous scholars, like Louis Brandeis, Roscoe Pound, and Felix Frankfurter, had heeded the mentor's words and studied the environment that contained the law while he had returned to items more satisfying to his taste. In the early twentieth century, a number of varieties of jurisprudence developed, disagreeing with one another in some

[2] John McCarten, "Atlas with Ideas," *New Yorker*, vol. 18 (Jan. 16–23, 1943), pp. 23–24, 22, 23. A. A. Berle, Jr., *Power without Property; A New Development in American Political Economy* (New York, 1959), p. 2.

respects but agreeing that Holmes had introduced a greater realism into legal thought. In 1921, Dean Pound, a leading promoter of one of the varieties, wrote that the new generation of lawyers had learned from Holmes to look upon law as a product of society with a function to perform within that society.[3]

Berle belonged to that generation of lawyers. As a boy and young man he lived in the midst of the promoters of the new jurisprudence. Brandeis was a friend of the Berle family and an associate of the father in the progressive movement.[4] At Harvard Law School during the years that Berle was there, the influence of Holmes was very large.[5] Pound was Carter Professor of Jurisprudence. More important for Berle was a younger disciple of Holmes, Professor Frankfurter, a stimulating teacher who frequently found himself involved in debate with his precocious pupil.[6] In 1916, the latter graduated from Harvard and joined the Boston firm of Brandeis, Dunbar and Nutter.

These giants of the new jurisprudence helped Berle to develop an interest in the study of the relations between law and economics. He shared the concern of Brandeis and Frankfurter about corporate power but could not accept their solutions to the problems it posed. He could, however, accept their approach to the study of law. Reviewers of his works frequently praised him for developing that approach.[7] One exponent of the new jurisprudence, Professor William O. Douglas, regarded a Berle book as "the opening wedge to that vast source of legal data too infrequently explored and for the most part ignored by law schools. It treats with many problems which are familiar to business schools but to date have been foreign to law schools."[8] "During the past few years," another reviewer noted in 1933, "there has been a constantly growing disposition to treat law as a social discipline, rather than as a system of logical deductions, and to articulate this discipline in terms of other social

[3] R. S. Kirkendall, "Evolving Evaluations of the Legal Thinking of Mr. Justice Holmes; A Study in the Reception of Ideas" (M. S. Thesis, University of Wisconsin, 1953), esp. pp. 14–16, 88–91, 97–101, 105–106.

[4] A. T. Mason, *Brandeis, A Free Man's Life* (New York, 1946), pp. 163, 481, 615. Berle, *Power without Property*, pp. 13–14.

[5] An editorial in the *Harvard Law Review* in the year that Berle graduated observed that many Harvard law students of that period had gained from Holmes their "first real appreciation of law as a genuine human science." Vol. 29 (1916), p. 617. Kirkendall, "Evolving Evaluations," p. 88.

[6] McCarten, "Atlas with Ideas," *New Yorker*, Jan. 23, 1943, pp. 23–24.

[7] See, for examples, E. Merrick Dodd, Jr., *University of Pennsylvania Law Review*, vol. 81 (April, 1933), p. 782. Phillip M. Payne, *Virginia Law Review*, vol. 20 (Nov., 1933), pp. 132–135. Chester Rohrlich, *United States Law Review*, vol. 66 (Nov., 1932), pp. 629–630. Fred D. Fagg, Jr., *Illinois Law Review*, vol. 27 (Feb., 1933), p. 707.

[8] *Virginia Law Review*, vol. 17 (April, 1931), pp. 625–626. See also Daniel James, *Indiana Law Journal*, vol. 8 (May, 1933), pp. 514–516, and reviews of Berle's work in many other law journals from 1928 to 1933.

sciences." Berle's work was "an excellent example of the benefits to be derived from such a point of view." [9] Berle himself believed that he was involved in an intellectual development that was both quite new and very significant. "The whole conception of corporation law," he observed in 1928, "has been undergoing a quiet revolution as men fix their attention less on legal entity than on the economic units and enterprises clothed by the corporate form." [10]

A parallel development that had taken place in economics had also influenced Berle. In that field, early explorations of the relations between law and economics had been made by institutionalists such as Henry C. Adams and John R. Commons.[11] Economists also, therefore, praised Berle's work for its indication "of a growing *rapprochement* between law and economics." [12]

These particular words of praise came from one of the leading institutional economists, Harvard's William Z. Ripley. He had been one of Berle's teachers at Harvard and had associated with the younger man again in the 1920's when Berle joined the faculty of the Harvard Business School. Ripley had taught Berle a great deal and had encouraged him to study the corporation.[13] Appropriately, reviewers frequently compared Berle's writings with Ripley's works.[14]

Ripley, by the time Berle sat in his classes, had already established himself as a leading authority on transportation and the corporation. It is interesting, in the light of Berle's ties with both Ripley and Franklin Roosevelt, that the latter as a graduate student in economics had taken two of Ripley's courses.[15] In those courses the future President had been exposed to a rather critical view of the power and practices of the nation's corporate giants. His teacher was an intellectual with a progressive bent who believed

[9] Bert Hopkins, *Idaho Law Journal*, vol. 3 (June, 1933), p. 268.

[10] *Yale Law Journal*, vol. 37 (Jan., 1928), p. 403.

[11] Joseph Dorfman, *The Economic Mind in American Civilization* (New York, 1946–1959), vol. 4, p. 160.

[12] *Columbia Law Review*, vol. 31 (Dec., 1931), p. 1220.

[13] A. A. Berle, Jr., *Liquid Claims and National Wealth* (New York, 1934), Preface. A. A. Berle, Jr., *Twentieth Century Capitalist Revolution* (New York, 1954), p. 6. A. A. Berle, Jr., "Corporate Devices for Diluting Stock Participation," *Columbia Law Review*, vol. 31 (Dec., 1931), p. 1239. A. A. Berle, Jr., and Gardiner C. Means, *The Modern Corporation and Private Property* (New York, 1932), Preface. McCarten, "Atlas with Ideas," *New Yorker*, Jan. 23, 1943, p. 23. Another pioneer in the field of institutional economics, Wesley Clair Mitchell, also encouraged Berle's studies of the corporation. Berle, *Twentieth Century Capitalist Revolution*, p. 6.

[14] See for examples, Theodore J. Grayson, *University of Pennsylvania Law Review*, vol. 77 (May, 1929), p. 940. Irving J. Levy, *New York University Law Quarterly Review*, vol. 7 (Dec., 1929), p. 553. Robert L. Masson, *Michigan Law Review*, vol. 28 (Jan., 1930), p. 358. Joseph V. Kline, *Harvard Law Review*, vol. 42 (March, 1929), p. 714. George W. Stocking, *Saturday Review of Literature*, vol. 37 (Nov. 27, 1954), p. 22.

[15] Frank Freidel, *Franklin D. Roosevelt* (Boston, 1952—), vol. 1, p. 60. Daniel R. Fusfeld, *The Economic Thought of Franklin D. Roosevelt and the Origins of the New Deal* (New York, 1956), pp. 25–34.

that the government must expand its regulatory powers in order to abolish and prevent abuses of corporate power, especially the evils in financial operations and price policies.

Berle's work was most frequently compared with Ripley's *Main Street and Wall Street*, a volume that attracted much attention in 1927. The book provided one of the first descriptions of the divorce of ownership from control in the large corporations. Ripley, like Berle, looked upon this development as a change of major significance and worried chiefly about the consequences for the stockholders. Also like Berle, the older scholar believed that the government must take action to deal with the problem but was reluctant to endorse any very large degree of governmental control of corporate managers.[16]

Berle, then, in his study of the relations between law and economics was participating in an activity in which a number of others were involved. In the 1920's, the development that had been promoted by men such as Holmes, Pound, Brandeis, Commons, and Adams, was carried further by Walton Hamilton, Karl Llewellyn, Leo Sharfman, Gerard Henderson, Robert Hale, and Henry Seager, as well as Ripley and Berle. The latter was not even the first to call attention to the rise of the managers. He simply carried further the study of that development and thus provided a more adequate picture of the corporate world.[17] Thus, Roosevelt, when he came in contact with Berle, came in contact with a broad intellectual development involving new schools of economic and legal thought.

Berle studied the rise of the managers first hand as well as in the written records. During most of the 1920's, he made his home in the world's financial center, participated actively in the politics of the local Republican Party, and worked as a highly successful corporation lawyer. In 1923 he formed his own law firm; and, as a biographer has written, "the main line of this legal work gradually carried Berle into the accepted channels for a respectable and ambitious young corporation lawyer in New York City."[18] He served as a director of several corporations and as special counsel for a committee that worked on the Ohio Corporation Act of 1928. Also, in 1927 he married the talented daughter of a New York millionaire.[19] In short, Berle's position within American society involved him in the developments that were taking place within the corporation

[16] Dorfman, *Economic Mind*, vol. 3, pp. 577, 755.
[17] *Ibid.*, vol. 4, pp. 160–164. Stuart Chase, "Ticker Tapeworms," *New Republic*, vol. 73 (Jan. 25, 1933), pp. 299–301.
[18] *Current Biography, 1940*, p. 78.
[19] McCarten, "Atlas with Ideas," *New Yorker*, Jan. 23, 1943, pp. 24–26.

and in its relationships with the state. The Social Gospel, the new jurisprudence, and institutional economics influenced his way of studying and evaluating those developments.

Even before Berle gained much contact with the corporate world, he started his career as a publishing scholar. That career began as the progressive period gave way to World War I. The pages of the *Harvard Law Review* in March of 1917 carried an essay by the young lawyer revealing that Ripley, Frankfurter, and others had already interested him in the relations between law and economics and that his mind was already struggling with the problems of power. The article dealt with the power of those administrative bodies that the progressives, with their confidence in government regulation, had produced so abundantly. Probing the public mind, he located a growing fear that those necessary agencies might "develop into tyrannous institutions, amenable to no law and subject only to the doubtful safeguards of political action." He assured his readers that "administrative law . . . [had] expanded coincidentally with administrative machinery" and would protect the public from its new and powerful creatures. Here was a voice from the first generation of law students nurtured by the preachings of Holmes about the responsiveness of law to experience, rather than logic.[20] This optimistic and dynamic view of law would persist in Berle's writings for many years to come, as would another theme contained in this early article. The latter theme stressed the need to define and clarify the evolving law so that it could play its role as a restraint upon power.[21]

This article focused upon administrative agencies, but they were only a response to the growth of another institution, the corporation. It possessed the power that attracted most of Berle's attention. The 1920's were years of rapid corporate advance and years that forced a number of students to recognize not only the goods that poured out of the corporations but also the momentous changes that were taking place within them.

Berle began to call attention to these inner changes in 1921, but at that early stage he had arrived at a strange position, strange, at least, in the light of his later views. At the age of twenty-six his mind had wandered to thoughts of changing the location of power in industry. Common stockholders, he informed the readers of the *New Republic*, were draining the corporation of money that should go to labor. The stockholders, instead of making managerial contri-

[20] Oliver Wendell Holmes, *The Common Law* (Boston, 1881), p. 1.
[21] "Expansion of American Administrative Law," *Harvard Law Review*, vol. 30 (March, 1917), pp. 430–448.

butions, merely gambled on the future of the corporation. Berle believed that control lay in the hands of those absentee owners, and he insisted that it should be taken from them and transferred to labor. (His definition of labor included managers as well as skilled and unskilled factory workers.) With the "red scare" perhaps in the back of his mind, he quickly advised his readers that his article contained no [22]

> **appeal to a misty State whose ownership relieves of pressure and stifles initiative. Nor is there any attack on private property; on the contrary, it is the emphasis on the strength of property. It is not a blow at our settled economic institutions; it is the sane use of them.**

Berle's article was largely an appeal on behalf of corporate management as opposed to corporate ownership. However, when he had the opportunity to examine the situation more closely, he reached a different conclusion about the contending groups in the corporation. In a long series of articles and books that began to appear in 1923 (the same year in which he formed his own law firm) his chief concern was with the fate of the stockholder. He had become aware of a basic change that was taking place in the American economy: owners were losing control of the giant corporations. Thus a lawyer with an interest in the relations between law and economics looked about for means to protect corporate ownership and found those means in the legal system.

A number of his articles appeared in law reviews in the years before the crash of 1929. They focused upon courts and corporations and described the legal checks available to restrain the corporate control groups. Several assumptions dominated the articles. Berle assumed that, as a consequence of the evolutionary character of law, interested parties often did not know that legal rules were available that could protect corporate owners from abuse by managers. Therefore, the parties involved must be made aware of their legal rights and duties so that the stockholders' property would be protected. The entire argument assumed that the health of the economy depended upon the investment process. Consequently, investors must obtain security. Otherwise they would not continue to play their vital role.

The tone of the articles was a mixture of worry and optimism. The author was worried about developments in the corporate power structure, but he was optimistic about the ability of law to meet the evolving corporate situation. And in this prosperous period,

[22] "How Labor Could Control," *New Republic*, vol. 28 (Sept. 7, 1921), pp. 37–39.

Berle's optimism extended to managers as well as judges. He believed that most managers were not abusing their great power.[23]

In 1928 Berle republished his early articles and supplemented them with a more general discussion of corporate problems. He emphasized a distinction that he maintained had not been noted until recently and that he regarded as of fundamental importance. On the one hand, in order to promote business, the courts had held that managers should have great discretion in the operation of the business. On the other hand, and this was the power that worried him, through corporate statutes and charters management had secured the power *"to determine and adjudicate property rights as between the parties in the corporate entity."* [24]

Awareness of this disturbing distinction did not force Berle to demand that administrative or legislative bodies deprive the managers of this power over property rights or prevent the managers from abusing their new power. Rather, as he viewed the situation, the property of the puny stockholder had to be protected primarily by the business community itself working chiefly through the investment process, the courts, and public opinion. The powerful influences of the investment bankers, the stock exchanges, and the insurance companies must restrain the corporate managers by enforcing business standards.[25] In those boom days of 1928, Berle had a good deal of confidence in the ethics of the business community and in the capacity of law to absorb the value system of business leaders. Conscience and courts would insure that the tremendous power of the managerial elite would be used with restraint and for the benefit of the stockholders.[26]

During the next three years, the business cycle rose high and dropped low while Berle continued his significant studies of America's key economic institution. He turned out articles and reviews in the legal periodicals, spoke to the nation's economists, and supplied the advanced student of corporate law with a book of *Cases and Materials*. He continued to express concern about the power that managers had over the property of stockholders and

[23] "Non-cumulative Preferred Stock," *Columbia Law Review*, vol. 23. (April, 1923), pp. 358–367. "Problems of Non-Par Stock," *ibid.*, vol. 25 (Jan., 1925), pp. 43–63. "Participating Preferred Stock," *ibid.*, vol. 26 (March, 1926), pp. 303–317. "Non Voting Stock and Bankers Control," *Harvard Law Review*, vol. 39 (April, 1926), pp. 673–693. "Subsidiary Corporations and Credit Manipulation," *ibid.*, vol. 41 (May, 1928), pp. 874–893. "Convertible Bonds and Stock Purchase Warrants," *Yale Law Journal*, vol. 36 (March, 1927), pp. 649–666. "Publicity of Accounts and Directors' Purchases of Stock," *Michigan Law Review*, vol. 25 (June, 1927), pp. 827–838.

[24] *Studies in the Law of Corporation Finance* (Chicago, 1928), p. vi. (Italics in the original.)

[25] *Ibid.*, pp. 26–39.

[26] *Ibid.*, pp. 189 ff.

to explore the available means to control that power. He testified to his satisfaction with the basic outlines of corporate advance, arguing that attempts to enforce competition had failed and that the nation must accept consolidation and cooperation in industry. Along this line, he went so far as to predict that the corporation might replace the government as the dominant institution in society and thus that the corporation law of today might well become the constitutional law of tomorrow.[27] "A Machiavelli writing today would have very little interest in princes and every interest in the Standard Oil Company of Indiana," Berle suggested to the economists late in 1929. "And he would be right, because the prince of today is the president or dominant interest in a great corporation." [28]

At this time Berle's point of view appeared but slightly affected by the sharp fluctuations in the business cycle. In 1929 he outlined a theory that brought together various limitations upon managerial power that had been developing in the courts. He hoped that by reducing the limitations to a general principle they would "begin to amount to a formulation of a set of constitutional limitations for economic empires." [29] In 1931, he developed the theory more fully in an article on "Corporate Powers as Powers in Trust:" [30]

> **It is the thesis of this essay that all powers granted to a corporation or to the management of a corporation or to any group within the corporation, whether derived from statute or charter or both, are necessarily and at all times exercisable only for the ratable benefit of all shareholders as their interest appears. That, in consequence, the use of the power is subject to equitable limitation when the power has been exercised to the detriment of such interest, however absolute the grant of power may be in terms, and however correct the technical exercise of it may have been.**

This thesis, in spite of the lengthening breadlines, limited the responsibilities of management to the interests of the stockholders. Some commentators on his work agreed that new safeguards needed to be erected to protect the stockholder, especially to encourage a

[27] "Compensation of Bankers and Promoters through Stock Profits," *Harvard Law Review*, vol. 42 (April, 1929), pp. 748–765. *Ibid.*, vol. 43 (Jan., 1930), pp. 507–509. *Ibid.*, vol. 44 (Jan., 1931), pp. 486–489. "Promoters Stock in Subsidiary Corporations," *Columbia Law Review*, vol. 29 (Jan., 1929), pp. 35–42. "Investors and the Revised Delaware Corporation Act," *ibid.*, vol. 29 (May, 1929), pp. 563–581. "Liability for Stock Market Manipulation," *ibid.*, vol. 31 (Feb., 1931), pp. 264–279; vol. 31 (Nov., 1931), pp. 1225–1227. "Corporate Devices for Diluting Stock Participations," *ibid.*, vol. 31 (Dec., 1931), pp. 1239–1265. "Elements of the Law of Business Accounting," *ibid.*, vol. 32 (April, 1932), pp. 573–600. *University of Pennsylvania Law Review*, vol. 80 (Nov., 1931), pp. 145–146. "The Organization of the Law of Corporation Finance," *Tennessee Law Review*, vol. 9 (April, 1931), pp. 125–145.

[28] Berle with Gardiner Means, "Corporations and the Public Investor," *American Economic Review*, vol. 20 (March, 1930), p. 71.

[29] *Ibid.*, pp. 68–69.

[30] *Harvard Law Review*, vol. 44 (May, 1931), pp. 1049–1074.

high rate of investment.[31] Others, however, believed that Berle unfairly maligned the managers and that additional judicial interference with the manager would reduce the efficiency of industry. A corporation lawyer from New York City declared that "any movement to increase the power of stockholders as such runs counter to the historical evolution of corporations. Mr. Berle's thesis is therefore essentially reactionary." [32]

More significant in terms of Berle's later development was the objection that he embraced a much too narrow view of the responsibilities of managers. Professor E. Merrick Dodd, Jr., of the Harvard Law School believed that no one should "give increased emphasis at the present time to the view that business corporations exist for the sole purpose of making profits for their stockholders." While he admired Berle's efforts to establish a legal control to "prevent corporation managers from diverting profit into their own pockets from those of the stockholders," Dodd insisted that public opinion and law were moving "in the direction of a view of the business corporation as an economic institution which has a social service as well as a profit-making function." [33]

Berle quickly defended himself against these insinuations concerning his social conscience. He argued that the tremendous power of the managers had to be subjected to some restraints and that the only restraints available in 1932 were the responsibilities to stockholders that judges would enforce. He hoped that in the future managers would be held to broader responsibilities but feared that in the meantime the existing legal checks might be ignored. Managers then would be operating without any effective restraints. In other words, his argument was that in the present situation one could either accept and strengthen the existing limitations or rely completely upon the good will of corporate management, a good will that did not then extend to an acceptance of responsibilities to the whole community. Before abandoning present arrangements, society needed to create the machinery to enforce a theory of broader responsibilities.[34]

[31] Karl McGinnis, *Texas Law Review*, vol. 10 (Dec., 1931), pp. 122–123. Irving J. Levy, *New York University Law Quarterly Review*, vol. 7 (Dec., 1929), pp. 552–554.

[32] Joseph V. Kline, *Harvard Law Review*, vol. 42 (March, 1929), pp. 714–718. See also, Paul L. Sayre, *Iowa Law Review*, vol. 18 (May, 1933), pp. 581–585. Laylin K. James, *Illinois Law Review*, vol. 26 (Feb., 1932), pp. 712–714. Harvey Hoshour, *Minnesota Law Review*, vol. 14 (Dec., 1929), pp. 105–107. F. S. Wood, "The Status of Management Stockholders," *Yale Law Journal*, vol. 38 (Nov., 1928), pp. 57–76. Robert T. Swaine, *ibid.*, vol. 38 (May, 1929), pp. 1003–1004. Wilbur G. Katz, *ibid.*, vol. 40 (May, 1931), pp. 1125–1128.

[33] "For Whom are Corporate Managers Trustees," *Harvard Law Review*, vol. 45 (May, 1932), pp. 1145–1163.

[34] "For Whom Corporate Managers are Trustees: A Note," *Harvard Law Review*, vol. 45 (June, 1932), pp. 1365–1372.

Earlier, Berle had predicted that at some future date corporate leaders might develop a sense of broader responsibilities.[35] But an emphasis upon them was by no means a major theme of his work during the first two years of the great depression. Furthermore, he clearly did not believe that the situation at the moment allowed him to emphasize such a theory. However, at the same time that Berle was replying to Professor Dodd, he was completing another manuscript that revealed that the depression was encouraging him to discuss the broader responsibilities of corporate management. The other manuscript was to become one of the great works in American social science, *The Modern Corporation and Private Property*. This work, which appeared in the late summer of 1932, contained the fruits of Berle's labors for the preceding ten years.

The work represented a major response to the demands for studies of the ties between law and economics. Berle's collaborator, Gardiner Means, was a young, Harvard-trained economist of the institutional school. Like Berle, Means had been influenced by William Z. Ripley and had gained his knowledge from participation in economic life as well as research. Means had taken Ripley's courses and had worked in the textile manufacturing business. Berle and Means had joined the faculty of the Columbia Law School in 1927 and had soon combined to explore the corporation as an economic and a legal institution.[36] Their collaboration symbolized the similarities between the new jurisprudence and institutional economics.

The *Modern Corporation* provided a wealth of evidence on the revolution that had taken place in the corporate world and explored some of the implications of the change. The revolution was the separation of ownership and control in the giant corporations that dominated the economy. It was apparent to the authors that "with the increasing dispersion of stock ownership in the largest American corporations, a new condition has developed with regard to their control:" [37]

> **No longer are the individuals in control of most of the companies the dominant owners. Rather, there are no dominant owners, and control is maintained in large measure apart from ownership. . . . Formerly assumed to be a function of ownership, control now appears as a separate, separable factor.**

The realities of American life had changed so significantly that new

[35] Berle and Means, "Corporations and the Public Investor," p. 71.
[36] Allen B. Gruchy, *Modern Economic Thought; The American Contribution* (New York, 1947), pp. 473–475, 539, 533–534. For attempts to define institutional economics see Gruchy's Preface and Edwin E. Witte, "Institutional Economics as Seen by an Institutional Economist," *Southern Economic Journal*, vol. 21 (Oct., 1954), pp. 132–137.
[37] Berle and Means, *The Modern Corporation*, pp. 117–118.

economic and legal theories needed to be developed to replace the old theories of private property, private enterprise, individual initiative, the profit motive, wealth, and competition.

The authors attempted to give the reader an impression of the tremendous power that managers had acquired. The book suggested that "the only example of a similar subjection of the economic interests of the individual to those of the group which appears . . . as being at all comparable, is that contained in the communist system." [38] Not even the legal checks designed to protect the stockholder offered him much power, for Berle now stressed the extreme difficulty of applying the theory of corporate powers as powers in trust. "In point of fact, if not in law," the authors concluded, ". . . a stockholder's right lies in the expectation of fair dealing rather than in the ability to enforce a series of supposed legal claims." [39]

The authors expected that the giant corporations and their managers would grow even more powerful but resisted the pleas of the Brandeis school that an effort be made to reduce that power.[40] Rather, Berle and Means called chiefly for the development of a sense of broad responsibility among the men of power in the corporate world. The depression situation, with the growing discontent in the country, had affected Berle's thinking. He and his colleague suggested that to preserve the corporate system the control groups needed to recognize claims of the whole community. A system of community obligations needed to be developed, chiefly by the corporate leaders, that would guide them in their relations with employees and the general public, as well as the stockholders.[41]

The reviewers reacted in varying ways to the volume. Some engaged in a controversy as to whether or not the book was written from a radical point of view.[42] More important were the objections that the authors made "no recommendations as to how the responsibility of private business should be enforced." [43] These critics believed that the situation described by Berle and Means demanded vigorous activity on the part of government, involving government regulation or even government ownership of the great corporations.[44]

[38] *Ibid.*, p. 278.
[39] *Ibid.*, p. 276.
[40] *Ibid.*, see especially the Preface and pp. 325–337.
[41] For brief discussions of the book see Dorfman, *Economic Mind*, vol. 5, pp. 753–754, and Arthur M. Schlesinger, Jr., *The Age of Roosevelt; The Crisis of the Old Order, 1919–1933* (Boston, 1957), pp. 190–193. For a more lengthy discussion of Gardiner Means see Gruchy, *Economic Thought*, pp. 473–539.
[42] I. M. Wormser, *American Bar Association Journal*, vol. 19 (Feb., 1933), pp. 113–114. Daniel James, *Indiana Law Journal*, vol. 8 (May, 1933), pp. 514–516.
[43] Bert Hopkins, *Idaho Law Journal*, vol. 3 (June, 1933), p. 270.
[44] Jerome Frank, *Yale Law Journal*, vol. 42 (April, 1933), pp. 989–996. Chase,

Berle could not go nearly so far as some of these critics desired; but, just as he was completing his contribution to the *Modern Corporation*, he obtained an opportunity that encouraged him to develop his conception of the role of government. In effect, this new opportunity encouraged him to respond more boldly to Professor Dodd. The new opportunity was the chance to serve as an adviser for a presidential candidate. Not only the depression in general but Berle's special relations to the political developments of 1932 influenced his intellectual growth. Tugwell has suggested that Roosevelt supplied Berle's mind with "the appreciation it required for sustained functioning. . . ." [45] It seems more accurate to suggest that Berle's participation in the activities of the Brain Trust encouraged him to believe that the nation need wait no longer to develop a very broad conception of management's responsibility. The nation, at that very moment, could begin to reform the situation in which management operated, developing new machinery and not relying only upon the feeble mechanisms that already existed.

One of Berle's colleagues at Columbia, Raymond Moley, provided the student of the corporation with the chance to influence policy developments. He was one of the three leading figures in the group that took shape in the early spring of 1932 in order to help Roosevelt form a national program. Berle, according to the historian of Roosevelt's early economic thought, "contributed a wealth of information on the concentration of economic power that supplemented both Tugwell's ideas on planning and Roosevelt's aversion to the financeering, irresponsible business leader." [46]

Berle joined with his fellow Brain Trusters to battle against the influence of the Brandeis point of view. It was promoted in Roosevelt circles by men such as Felix Frankfurter who sought to "reverse the trend toward economic concentration through rigorous regulation of investment banking and of the securities exchange." [47] To Tugwell and Moley, as well as Berle, the development of "bigness" in economic life was both inevitable and desirable. They believed that the opposing position would lead to a few useful minor reforms but would make no contribution to recovery and would make planning impossible.[48]

"Ticker Tapeworms," *New Republic*, vol. 73, pp. 299–301. Harry W. Laidler, *Survey Graphic*, vol. 22 (June, 1933), pp. 330–331. Ernest Gruening, *Nation*, vol. 136 (Feb. 1, 1933), pp. 116–117. Cf. Fusfeld, *Economic Thought of FDR*, p. 214.

[45] Rexford Guy Tugwell, *The Democratic Roosevelt; A Biography of Franklin D. Roosevelt* (Garden City, 1957), p. 215.

[46] Fusfeld, *Economic Thought of FDR*, p. 212.

[47] Schlesinger, *Crisis of the Old Order*, p. 419.

[48] For discussions of Berle and the Brain Trust see Schlesinger, *ibid.*, pp. 399–402,

Berle's big chance to commit Roosevelt publicly to the planner's point of view came in September. The professor prepared the draft of a speech that the candidate presented at the Commonwealth Club on September 23, only a month after the publication of the *Modern Corporation*.[49] Tugwell has written of the speech:[50]

> **For once he [Roosevelt] was caught without even a moment for revision. He never saw the speech until he opened it on the lectern before his expectant western audience. It was written by Adolf Berle with some assistance from me. . . .**

And Schlesinger has observed that "the speech reflected Berle more than it did Roosevelt." [51] While this is true, it misses the point that the speech reflected the Berle who had been transformed by contact with Roosevelt. Contact with the rising political leader had encouraged the intellectual to believe that the time was at hand to enlarge the outlook of business leaders.

The speech focused upon power and the proper ways of dealing with it. The readers of the new book on the corporation would comprehend the description of the power situation. A careful study, Berle wrote and Roosevelt announced,

> **showed that our economic life was dominated by some six hundred odd corporations who controlled two-thirds of American industry. Ten million small business men divided the other third. More striking still, it appeared that if the process of concentration goes on at the same rate, at the end of another century we shall have all American industry controlled by a dozen corporations run by perhaps a hundred men. Put plainly, we are steering a steady course toward economic oligarchy; if we are not there already.**

Then, in line with the kind of advice the Brain Trust had been giving to Roosevelt, the speech argued that the giant economic units should be accepted and controlled, not destroyed. An "economic declaration of rights, economic constitutional order" needed to be developed to supplement the declaration of rights and the constitution that the Founding Fathers had developed to deal with the power of the national government. Power had to be accepted but it must be forced to recognize the rights of others.

Both government and business had roles to play in the development of the new order, but business had the larger role. Government was simply "to assist the development. . . ." It was to restrain

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419–420, and *The Coming of the New Deal* (Boston, 1959), p. 184; Freidel, *FDR*, vol. 3, pp. 263–264, 326, 335, and Tugwell, *Democratic Roosevelt*, pp. 218, 234.

[49] *Publishers' Weekly*, vol. 127 (Aug. 27, 1932), p. 706.

[50] Tugwell, *Democratic Roosevelt*, p. 246.

[51] Schlesinger, *Crisis of the Old Order*, p. 426.

"the lone wolf, the unethical competitor, the reckless promoter, the Ishmael or Insull. . . ." He must not be allowed "to drag the industry back to a state of anarchy. . . ." Furthermore, the government must act to protect the public if the organized businessmen used their "collective power contrary to the public welfare. . . ." But government regulation should be employed "only as a last resort." It should be employed "only when private initiative, inspired by high responsibility, with such assistance and balance as Government can give, has finally failed." Government's chief role, then, was the crucial one of applying some of the pressure needed to develop a sense of "high responsibility" among the holders of economic power.

A larger role must be played by business leaders. They must provide means whereby every man who will work can make a comfortable living and develop restrictions upon "the operations of the speculator, the manipulator, even the financier" so as to guarantee every man a right "in the safety of his savings." Basically, business leaders had to recognize that their economic power involved a public trust that they needed to fulfill in order to retain that power. They were "princes of property" who "must fearlessly and competently assume the responsibility which goes with power." The "responsible heads of finance and industry" should work together "to achieve the common end," sacrificing, when necessary, a private advantage in order to "seek a general advantage."

The speech assumed that radical developments threatened if business leaders did not accept broader responsibilities. Reference was made to the need to develop "a more permanently safe order of things." The audience was warned that "a rising tide of misery, engendered by our common failure, [might] engulf us all." Corporate units were advised that they could not continue to exist "unless purchasing power is well distributed throughout every group in the Nation."

Thus Berle, in the depression situation, was worried about the possibility of collapse and revolution, but he was confident that business and political leaders would promote the reforms needed to preserve the system. He believed that "many enlightened businessmen" recognized their responsibilities. They needed only a new effort by government to enable them to deal successfully with the situation. The speech ended with an expression of faith that the necessary action would be taken.[52]

Berle, by the end of 1932, had arrived at a point of view that

[52] Rosenman, ed., *Public Papers*, vol. 1, pp. 742–756.

emphasized the broad responsibilities as well as the great power of corporate managers. This point of view required that the government both accept corporate power and step up its own activities in economic affairs. By so doing, government would encourage business leaders to accept their responsibilities. Berle, Professor Schlesinger has written,[53]

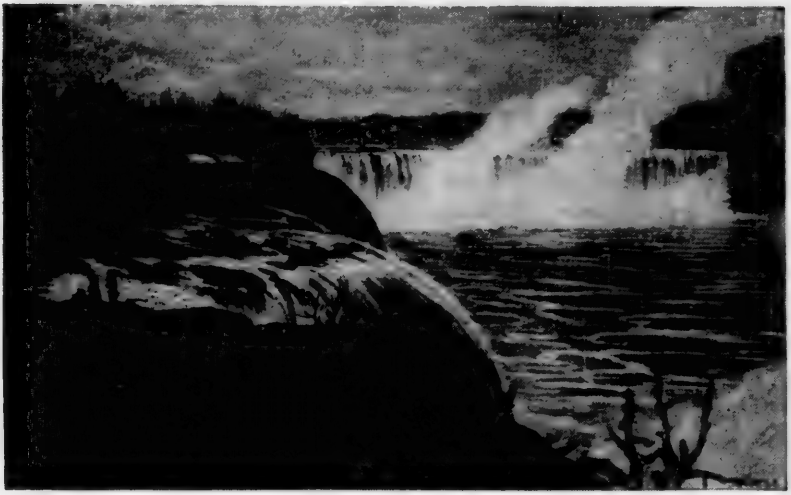
> **had an abiding faith that, in time, the corporation would generate a conscience, a soul. . . . Berle thought . . . of a government-business partnership, with government promulgating new social ideals and inspiring businessmen to a new sense of ethical responsibility.**

Roosevelt provided the opportunity to use government in the desired ways, but Berle feared anyone who would rely chiefly upon governmental power. This clergyman's son believed that those who emphasized the expansion of political power as the basic solution only proposed to shift the location of the fundamental problem, the ethical one.[54]

A number of developments had moved Berle to his position. The new jurisprudence and institutional economics had encouraged him to study the relations between law and economics. His experiences as a lawyer as well as his studies had alerted him to the revolutionary developments in the corporate world. The Social Gospel had inclined him to think in terms of the responsibilities of the new men of power. Contact with Franklin Roosevelt had caused the Brain Truster to conclude that the time had arrived to push those men toward an acceptance of a broad conception of their responsibilities.

[53] Schlesinger, *Coming of the New Deal*, pp. 183–184. See also *Crisis of the Old Order*, pp. 192–193, 415.

[54] A. A. Berle, Jr., "The Trend of the Turn," *Saturday Review of Literature*, vol. 9 (April 15, 1933), pp. 533–535. "On our Way but Where are We Going," *ibid.*, vol. 10 (April 14, 1934), pp. 625–626. "High Road for Business," *Scribner's Magazine*, vol. 93 (June, 1933), pp. 325–332. "What's Behind the Recovery Laws," *ibid.*, vol. 94 (Sept., 1933), pp. 129–135. "Private Business and Public Opinion," *ibid.*, vol. 95 (Feb., 1934), pp. 81–87. "Business and Government; Toward a Common Ground," *ibid.*, vol. 96 (Nov., 1934), pp. 257–265. "Law and the Social Revolution," *Survey Graphic*, vol. 22 (Dec., 1933), pp. 592–594. Clair Wilcox *et al.*, *America's Recovery Program* (New York, 1934), pp. 252–253.



The First Niagara Falls Power Project

Harnessing the Niagara for large-scale commercial power exploitation was an entrepreneurial feat of major dimensions. The project also demonstrated the successful application of science to an economic problem. American investors proudly declined European financial assistance, but only too willingly solicited the advice of Europe's leading engineers.

by Harold I. Sharlin

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In 1895, the tremendous power of the falling water at Niagara Falls was successfully tapped and converted into electricity for commercial use. The achievement was spectacular in its own right, but of more lasting importance was the use of electrical engineering to solve commercial problems and the consequent decision to build a large central station which would distribute power over a wide area. Electrical theory was used by engineers to demonstrate the economy of alternating current power distribution over the more limited direct current system. The project at Niagara

was a pioneering move in the development of the modern systems of generating and distributing electricity, a ubiquitous and essential force in our civilization. The challenge of harnessing Niagara was intimidating by its magnitude, and the methods to be used were unproven, yet American capitalists were willing to undertake the risk and to wait five years for returns on their money.

The development of plans for the Niagara Falls power project follows the transition in the use of power from directly coupled water wheel to mechanical transmission, thence to direct current transmission, and finally, to alternating current transmission. When the first scheme for utilizing a large proportion of the power available at the Falls was suggested in 1886, water wheels were proposed. Between that date and 1893, when the decision was made in favor of alternating current, the capitalists who organized the power project had recourse to the most advanced thinking of the world's leading scientists and engineers. On the basis of this thinking, they were able to make decisions which have been proven absolutely correct.

No one can adequately describe the Falls. Since they were discovered, men have been awed by the spectacle of grandeur and power. The total head or drop in the immediate vicinity of the Falls is about 200 feet and an estimated 210,000 cubic feet of water per second flows over it. If all of this could be converted to usable power, 6,000,000 horsepower would be developed.[1] Not only is there great power available but the constancy of flow of the Niagara River makes it a very dependable and steady source of power. A great reservoir of four of the five Great Lakes maintains the level of the river and hence the potential power of the Falls remains almost unchanged from year to year.

The problem of harnessing the Falls for productive purposes was a difficult one and could only be done by indirect means. The first successful attempt to derive power from the Falls was in 1875.[2] The method used was to cut a canal in the plateau which was level with the top of the Falls. Since the Niagara River makes a right angle turn at the Falls, the canal formed a right triangle with the river. Water was let into the canal above the Falls and the canal emptied over an embankment into the river below the Falls. Mills, which derived power from water wheels, were built along the em-

[1] Editors of Cassier Magazine, *The Harnessing of Niagara* (New York and London, 1895), p. 232n.

[2] Edward D. Adams, *Niagara Power, History of the Niagara Falls Power Company, 1886–1918* (Niagara Falls, New York, 1927), vol. I, pp. 76–80.

bankment. By 1882 only 7,000 horsepower of the vast potential was being used. Wheels supplied power to a flour mill, paper mill, barrel factory, a brewery, and a fork and spoon factory. There was also a small hydroelectric generator which supplied power for arc lamps.[3]

The arc light had been replacing gas as a means for illuminating streets since 1870. The invention of the incandescent lamp extended to the home electricity's use as an illuminant. Beginning in 1882 with Edison's Pearl Street Station, the idea of a central station for supplying direct current to incandescent lamps spread rapidly. The use of electricity to power street railways was pioneered by Frank J. Sprague. His successful installation of an electric streetcar system in Richmond, Virginia, in 1887, and the electrification of elevated lines gave, in the words of one historian, "electricity such an advantage over all other forms of motive power that it soon was recognized as the only motive power suitable for urban rapid transit."[4] The United States in 1890 had 1,261 miles of electrified railway, compared to over 5,000 miles of railway which used animal power. By 1902, electric street railways covered 21,920 miles, while animal, cable, and steam power railways together amounted to only 669 miles.[5] In 1886, however, the possibilities of exploiting electricity were just beginning to be realized. The demand for lighting and traction was going to require large investments which were to pay handsomely. Electric power was to find even more extensive use in manufacturing, but in 1886 this application was only in the experimental stages and electrification of factories did not begin in earnest until 1900. The electrolytic refining of aluminum ore was patented in 1886. This and other electrochemical processes were to be large consumers of Niagara power.

Citizens of Buffalo, a promising industrial location, took a forward looking view of the application of power.[6] The first alternating current central station in the United States was installed there in 1886. At that time, Buffalo's industries were powered by approximately 30,000 horsepower, little of which was electricity. In 1887 the businessmen of Buffalo pledged $100,000 to be offered as a prize "to the inventors of the World" who would design an appliance which would utilize the power of the Niagara River "at or near

[3] W. C. Beck, "Water Power and Manufacturing Interests of Niagara Falls" (Minneapolis, Minnesota: Northwestern Miller Print, 1882), Reprint, p. 16.

[4] Harold C. Passer, *The Electrical Manufacturers, 1875–1900* (Cambridge, 1953), p. 275.

[5] Bureau of the Census, *1900, Bulletins No. 1–10*, "Street and Electric Railways in the United States, 1902" (Washington, D. C.: Government Printing Office, 1905), p. 5.

[6] *The Harnessing of Niagara*, pp. 342–343.

Buffalo, so that such power may be made practically available for various purposes throughout the city. . . ."

The Buffalo contest attracted world-wide attention. The resulting mail was so heavy that the Buffalo Business Men's Association was formed to handle it. One of the members devoted full time to storing models of proposed projects. In spite of the effort, however, none of the projects was considered good enough. One result was a company incorporated in Virginia at $20,000,000 and called the Niagara Hydraulic Electric Co. This company's idea was to place hydroelectric machines in the caves behind the Falls.[7] Needless to say, this proposal was never carried further.

New York State acquired land along the river both above and below the Falls in an attempt to preserve the natural beauty of the site. This move placed serious, but as it turned out fortunate, limitations on any proposal to harness Niagara. Thomas Evershed, a division engineer on the Erie Canal, in a letter to a Lockport, New York, newspaper in February, 1886, had suggested a tunnel with openings beyond the borders of the State Reservation. Water was to be taken from the river above the Falls at several different spots. It was then to be fed through the water wheels of 238 mills (maximum) and pass through the tunnel out into the river below the Falls.

Businessmen in Niagara Falls and Buffalo were immediately interested in the Evershed scheme. They obtained a state charter for the Niagara Hydraulic Tunnel, Power and Sewer Company. These enthusiasts took their plans to the money markets of Buffalo, Boston, New York, and London. For three years they tried unsuccessfully to obtain the necessary capital. The trouble was, as one banker put it, that "The promoters of the enterprise were not capitalists. They were devoted admirers of the Falls, which they considered a public asset of great value." [8] The bankers who were approached realized that it would take some time to build an industrial town in the village of Niagara Falls, which had a population of 5,000. Meanwhile, they must have asked, how is the interest on the indebtedness to be paid?

In the summer of 1889, a group of bankers, including a "Vanderbilt man," met to make plans for the undertaking. A new corporation, the Cataract Construction Company, was formed. The Cataract company purchased the entire capital stock of the Niagara Falls Power Company (the new name for the Niagara River Hy-

[7] Adams, *Niagara Power*, pp. 94–95.
[8] *Ibid.*, pp. 115–129.

draulic Tunnel, Power and Sewer Company). The Cataract company was the financial agent for the Niagara company and was to undertake all construction. It was decided to continue the local people on the board of the Niagara Falls Power Company "as good business policy." [9]

The Cataract Construction Company approached Winslow, Lanier, & Company, New York bankers, with an offer of half interest in the enterprise. Edward D. Adams, a partner in Winslow, Lanier and a member of the board of directors of Edison General Electric, was delegated to conduct an investigation to determine the merits of the proposal. Adams became the capitalist most responsible for the success of the project at Niagara Falls. He was connected with the enterprise for the next 37 years, until 1926.

The Evershed scheme, as conceived in 1890, was solely for the use of water wheels within individual factories. Yet the list of subscribers to the first construction fund contains many people who were important in Thomas Edison's electric enterprises. Darius Ogden Mills, along with Adams, became a member of the Board of Directors of the Cataract company in 1890. It seems that Adams was convinced of the worth of the scheme and he, in turn, was convincing. The list of the first capital subscribers had 103 names. Among them were: Chauncey M. Depew; Kuhn, Loeb and Co.; J. P. Morgan; W. K. Vanderbilt; Winslow, Lanier & Company; and Baron Rothschild.[10] Three men on the list of subscribers, Morgan, Mills, and M. K. Twombly, comprised the committee of three that represented the Edison General Electric Company in the merger which formed the General Electric Company.[11]

Subscriptions to the power project were sold in blocks which consisted of one share of Cataract Construction Company stock at $50 and $7,250 of Niagara Falls Company first mortgage 5 per cent bonds, at 90 per cent. The total cash price for each block was $6,575, but, since there were only 103 subscribers, the average subscription was over $25,000. It was estimated that the fund of $2,630,000 would be enough for financing a complete plant which would produce 20,000 horsepower by hydraulic means. At $10 per horsepower per annum, the income would be enough to pay 5 per cent interest on $3,000,000 worth of bonds and leave $50,000 for a sinking fund and to pay operating expenses.[12]

The raising of capital was accomplished quickly, being com-

[9] *Ibid.*, pp. 130–132.
[10] *Ibid.*, pp. 292–294.
[11] Matthew Josephson, *Edison, A Biography* (New York, 1959), p. 383.
[12] Adams, *Niagara Power*, pp. 292–294.

pleted early in 1890. In February, the Cataract company was authorized to proceed with construction. Finance was not the only problem considered by the promoters. They decided both that the water supply to the city of Niagara Falls was insufficient for the expected increase in population and that the water was not pure enough. To insure an adequate supply, the Niagara Falls Water-Works was acquired in January, 1890. Plans were drawn for a completely new village outside of Niagara Falls to house the influx of industrial workers. The Cataract Construction Company was charged with designing and building the new town.[13]

American capital was well on its way to independence from foreign sources by 1890. The following dialogue between President Adams of the Cataract company and Baron Rothschild is evidence of this new circumstance: [14]

Rothschild asked: "I suppose you are not ready with your financial plans?"

To which Adams replied:

> **Yes, they have been adopted in a preliminary extent. We find the project very interesting; it has many problems; all previous efforts to utilize Niagara power in an important way have been failures, but we believe that science has so advanced that, with its skilful use, it may soon be possible to harness Niagara upon a commercial basis. We have resolved to engage in the experiment.**

The English banker continued, "I presume you will wish to discuss your financial plans?"

> **Not exactly, sir. We have not come for money but for advice. Our immediate and contiguous requirements have been provided, and we wish to begin by investing in the counsel of your scientists and engineers.**

Said Lord Rothschild,

> **Well, this is something new, indeed. Rarely in my experience have foreign capitalists come to London to spend their own funds for information as to how to invest their own money in their own country. I should like a participation in your experiment and will gladly assist you in every possible way.**

The "money subscribers" had shown an unusual amount of trust in Adams's judgment. They had put up enough money to see the project through the initial stages and they contributed more money when it was needed. Upon Adams fell the responsibility of turning Evershed's basically sound scheme into a profitable enterprise. Engineers were agreed that the plan for producing power at the

[13] *Ibid.*, pp. 158–160.
[14] *Ibid.*, p. 298.

Falls by means of water wheels or turbines was feasible. The Swiss had been successfully manufacturing water wheels and turbines for such high heads. But the village of Niagara Falls hardly seemed the place to market 200,000 horsepower. It had a population of only 5,000 in 1890. The power would have to be transmitted to Buffalo. But how?

The distance from Buffalo to Niagara Falls was 20 miles. Never before had such a large amount of power been transmitted so far. Several methods of transmission were in use in the United States and Europe. They were by wire or manila rope, by water under pressure, by compressed air (Westinghouse in 1889 seriously urged this system because he believed it was the only one which was perfected enough to handle the magnitude of the Niagara power), and by electricity. Although the mechanical means was not ruled out until the end of 1891, electricity was conceded by the scientific and engineering world to be the method of transmission which could surpass the others in efficiency. The real battle was over the question of whether the transmission system was to be alternating current or direct current. A decisive encounter in this so-called "battle of the systems" took place at Niagara.

The main advantage of a.c. over d.c. is the efficiency of transmission. Alternating currents can easily be changed to high voltage which reduces the loss of power on the transmission line beyond anything that is possible with d.c. The decision to send power to Buffalo, 20 miles from Niagara Falls, precluded the use of d.c. But much of the argument over a.c. versus d.c. in 1890 centered around the economics of the two systems. Much depended on what the electricity was to be used for.

If a.c. generators and transformers were used at capacity, they were unquestionably more efficient than a comparable d.c. system. One pound of coal burned to produce steam which ran turbines used to drive generators would deliver more power at the end of a 20-mile transmission line if a.c. were used. But the trouble was that the demand for electricity in 1890 was mainly for lighting. That meant that during the daylight and late evening hours when little electricity was used, the generating equipment was not employed to capacity. Under conditions of a varying load, d.c. was much more efficient than a.c. over a 24-hour period. One engineer estimated that under such conditions 20 pounds of coal would be needed to deliver a unit of power in the a.c. system where only 10 would be needed for the d.c. system.[15]

[15] John A. Fleming, *The Alternate Current Transformer* (New York, 1900), vol. II, p. 422.

The solution to the problem of a varying load had already been worked out for the d.c. system. Small generators were used in the central stations in conjunction with a group of batteries. When the load was very light only one or two generators were used. As the load increased, generator after generator was added to the system. During the short periods of peak demand the batteries were connected to the system. In this manner the small machines would always be working at maximum efficiency, and therefore the cost of power was kept down.

Electrical engineers were not convinced in 1890 that several a.c. generators could be worked on a system at the same time. Using more than one generator on a transmission line at the same time is called paralleling. So little was known about the characteristics of a.c. generators in 1890 that many engineers were not convinced parallel operation was feasible. The theoretical problem had been solved as early as 1884 and was demonstrated in a paper before the Institution of Electrical Engineers. But the building and operating of actual machines was another matter.

The field of power transmission was so new that the Cataract Construction Company decided to consult several authorities in the field. Among the first to be contacted was Thomas A. Edison, whose advice was sought partly because of his experience and partly because many of the financiers associated with the Niagara project had also been associated with Edison in his electric light ventures. Edison was enthusiastic. When asked via cable to Europe: "'Has power transmission reached development that in your judgement seems practicable?'" He replied, "'No difficulty transferring unlimited power. Will assist. Sailing today.'" After a survey, Edison recommended generation of d.c. at Niagara Falls for transmission to Buffalo. But because of the interest in alternating current power, the Cataract company decided to delay a final decision until that method had been fully investigated. Edison apparently was piqued by what he considered rebuff because he refused an offer of $10,000 for his work. He said that he would prefer to keep his information.[16]

Frank J. Sprague, who had just installed his electric trolley system in Richmond with very little capital and technical knowledge but a great deal of nerve, was consulted. He was cautious about using a.c. at Niagara. Sprague's reply to the question of feasibility was the epitome of conservatism. He wrote:[17]

[16] Adams, *Niagara Power*, p. 144.
[17] *Ibid.*, p. 151.

I do not think the problem to transmit power by electricity from Niagara Falls to several points at varied distances up to 20 miles, a sound one, commercially. Scientifically, of course, it is possible; but in view of the large amount of work which has to be done to develop a suitable plant . . . and the ordinary commercial questions which arise, seem to take this problem out of the category of those which may be specially relied upon to be successful. My own feeling is simply this: with ample means, and with an assured demand for the power, I would not hesitate to transmit any amount of power from Niagara Falls to Buffalo, but, although I would feel capable of doing this, if I were at the same time asked if I would invest any money in the enterprise, I would decline to do it. . . .

Professor Henry A. Rowland of Johns Hopkins University, one of the country's leading physicists, was asked: Had the remarkably expanding field of electrical transmission reached the commercial stage? He replied:

That power can be transmitted to a great distance by electricity and with reasonable certainty is a matter well determined today [1889]. But the practical and commercial question is of a different nature from the scientific one and may be stated thus: At what distance from cheap water-power can such power, transmitted electrically, compete with steam in cost and certainty of operation?

Rowland thought that transmission of electrical power by a.c. had great possibilities but he believed a.c. transmission had not reached a practical state. He recommended transmission by high voltage d.c. Rowland also believed that no electrical manufacturing company should be entrusted with carrying out the scheme because none of them was equipped for such a project or had the type of electricians, capable of dealing with such problems, who were not already engaged in their own personal work. He suggested that the Cataract company engage an electrical engineer at a high salary to stand between the company and the electrical manufacturers.[18]

Heeding Rowland's advice, the Cataract company hired specialists to help them in the difficult decisions. One of these specialists was Clemens Herschel, a hydraulic engineer and manager of a water works. His report in the summer of 1889 expressed serious doubts as to the profitability of the project. Herschel was hired as hydraulic engineer for the Niagara project and served with the company from 1890 until the construction was completed. The search for an engineer with broad experience in mechanical and electrical fields and free from association with an electrical manu-

[18] *Ibid.*, pp. 152–155.

facturer was a success. Dr. Coleman Sellers of Philadelphia was engaged. He submitted a series of reports during the fall of 1889. The reports were favorable to all aspects of the project from the digging of the tunnel to the transmission of power. Sellers considered the transmission of power 20 miles reasonably certain.[19]

While Dr. Sellers was conducting an investigation based upon American knowledge, several groups interested in the Niagara project traveled through Europe hoping to gain some help. Adams went in 1889. A vice president and an engineer from the Cataract Construction Company followed in 1890. Professor Rowland also went to Europe on behalf of the Cataract company to consult with scientific friends. Westinghouse sent an engineer to Europe in 1889 to keep the company abreast of the latest developments.

All of these men traveled through England, France, Italy, Germany, Hungary, and Switzerland. The tour gave Adams an idea. He cabled the directors of the Cataract company in May, 1890: [20]

> **After careful investigation conclude practice here far ahead ours. Recommend defer execution construction contracts.**
>
> **Considering inviting American, English, French, Swiss houses to submit competitive preliminary schemes to commission composed of Sellers, Edison, and English, French and Swiss engineers, one each. . . .**

He cabled again on June 8 from Geneva:

> **Am convinced International Commission best course. Sir William Thomson will act as president. . . .**

Adams cabled on June 10 from Paris:

> **. . . Have arranged conditioned upon directors' approval, International Niagara Commission, President Sir William Thomson, Sellers, Mascart, Membre Institute, Professeur College France, Turrettini, Mayor Geneva. Headquarters sessions London. Principle engineers Europe promise compete. Cost including prizes about thirty-five thousand.**

The Board of Directors approved the idea of a competitive contest on June 24, and letters of invitation went out on June 25, 1890. Twenty-eight invitations were sent, twenty-three to Europeans and only five to Americans. There were three different categories with three prizes in each. The largest award was to be $3,000. Commissions ranging from 2½ per cent to 5 per cent were to be paid to the winners on the manufacturing costs if they were not chosen to build the equipment.

There were some very strong criticisms of the principle of the

[19] *Ibid.*, pp. 156–157.
[20] *Ibid.*, pp. 172–174.

Commission. Westinghouse was quoted as saying, " 'Those people are trying to get $100,000 worth of information for a prize of $3,000.' " [21] A reporter who covered the meeting of the English Institution of Electrical Engineers quoted one engineer as saying the undertaking at Niagara would be carried out on the " 'unrecompensed work of the whole electrical world.' The unusual applause which greeted his remark expressed the feeling of English electrical engineers on this matter." [22]

Adams, in defense of the Commission idea, cited the fact that only one entry was considered worthy of first prize and that one was for the hydraulic turbines which were designed according to well-established principles. No prize was awarded for a system of distribution. The fees paid to foreign engineers and to the Commission were far in excess of Adams's original estimate. The total was $75,872.91. The sum of $430,000 was paid to foreigners for engineering fees, machinery and material.[23] These sums make the charge of "unrecompensed work" difficult to sustain, but it is hard to estimate what a "fair" price would have been.

The report of the International Niagara Commission marks progress toward acceptance of the principle of electrical transmission. The Commission's secretary wrote that it was the general opinion of the Commission that electrical methods be adopted as the chief, although perhaps not the sole, means of distributing power. He wrote further, "In the selection of electrical methods they are not convinced of the advisability of departing from the older and better understood methods of continuous currents on favor of the adoption of alternating currents." [24]

By the end of 1891, Evershed's original scheme for diverting the Niagara River's waters through a tunnel which was to pass under mills, was considerably modified. Adams wrote that "I came to the conclusion that our true way possibly might be to build this tunnel and develop the whole power in this one central station, transmitting the power to different places." [25] He reached this conclusion in the summer of 1890.

The final decision in favor of electricity was made by the Board of Directors in December, 1891. They had been advised to take this course by the company's technical advisers, Rowland, Sellers, and Professor George Forbes. Forbes, who had just been hired as

[21] Article written by L. B. Stillwell, Westinghouse engineer, in Adams, *Niagara Power*, vol. I, p. 363.
[22] *Electrical World*, vol. XXIII (Jan., 1894), p. 43.
[23] Adams, *Niagara Power*, vol. II, pp. 433–435.
[24] *Ibid.*, vol. I, pp. 444–445.
[25] *Ibid.*, p. 162.

consultant, was a Fellow of the Royal Society and had been president of the British Electric Light Company. His competence in the design of electrical and mechanical machines was to prove essential to the success of the Niagara project. The technical advisers had been swayed by successful transmission of electrical power over considerable distances from Tivoli to Rome (16 miles), in Portland, Oregon, and at Telluride, Colorado.[26]

In December, 1891, after the major decision in favor of electricity had been made, the Cataract Construction Company sent letters of invitation to a select list of companies which had "a scientific staff competent to design such novel machines as were required, and of ample facilities for their construction." The only American companies to receive invitations were the Thomson-Houston Company, the Edison General Electric Company (the two were later merged and became the General Electric Company), and the Westinghouse Company. Nothing was heard from these companies for a year. Meanwhile a Swiss manufacturing company had submitted a likely proposal for an a.c. system. Negotiations were reluctantly stopped when it was decided that the disadvantage of a 40 per cent tariff and a 10 per cent freight charge was too great. The foreign company was also unwilling to give a satisfactory guarantee against patent suits.

In March, 1892, Westinghouse notified the Cataract Construction Company that it was ready to submit plans for the generators at Niagara. Dr. Sellers and Professor Rowland, representing the Cataract company, visited Westinghouse. The two were impressed by the staff of mechanical and electrical engineers that Westinghouse had employed. Not only did they have competent theoretical men but, as President Adams noted, they had manufacturing facilities capable of handling the unique problem of the Niagara generators. Adams later wrote, "Moreover, the fact that the Westinghouse enterprise developed from a machine shop as a foundation into a great engineering structure, including important electrical works as its latest production, was a promise of favorable results. . . ."[27]

The important electrical works Adams referred to were some 300 central power stations supplying electricity for an estimated 500,000 sixteen-candle-power incandescent lamps. This feat was accomplished in a short span of four years, from 1886 to 1890. According to John A. Fleming, a distinguished English electrical

[26] Francis L. Stetson in *The Harnessing of Niagara*, pp. 186–191.
[27] Adams, *Niagara Power*, vol. II, pp. 193–195.

engineer, the work was done well: "The various portions of this system," he wrote in 1890, "have been designed with great care, and the mechanical and electrical construction of all parts has been brought to a high level of perfection." [28]

All of the stations built by Westinghouse were for alternating current, since the company at an early date had committed itself to this system. Westinghouse had bought the American rights to such a system designed in Europe and the company had Tesla's patent on an a.c. motor. At the Chicago World's Fair of 1893, Westinghouse exhibited a complete polyphase a.c. system. There was an a.c. generator, transformers for raising the voltage for transmission, a short transmission line, transformers for lowering the voltage, induction motors, synchronous motors, and a rotary converter which supplied d.c. for a railway motor.

Finally, in March of 1893, 18 months after the letter of invitation had been sent, both Westinghouse and General Electric submitted plans for a.c. systems consisting of generators, transformers, and transmission lines for Niagara. The Cataract company's consultants, Sellers, Rowland, and Forbes, noted that both companies had submitted almost identical plans except for a difference in the number of phases. Rowland and Sellers preferred Westinghouse's mechanical design and Forbes chose the electrical design of Westinghouse over General Electric's. The Cataract company decided, however, that there was no advantage in selecting either proposal and rejected them both. In the spring of 1893, the directors of the Cataract company decided the company would design its own generators and placed Professor Forbes in charge of the work. Forbes favored the use of a.c. and the scientific tide seemed to have moved in favor of this system. Accordingly, the directors also decided that the best method for transmitting power from Niagara Falls was to be alternating current electricity.

Forbes delivered a paper before the Institution of Electrical Engineers in 1893. He explained the unique generator design which he had created for Niagara and the reasons why he had made such an unusual design. Forbes prefaced his remarks by saying that, if he had given the paper a few years before, he would have had to devote considerable time to discussing the relative merits of a.c. and d.c. and to justifying the Cataract company's choice of the former. What had changed since the Cataract company's first inquiries in 1889? What made Forbes and the company

[28] Fleming, *Alternate Current Transformer*, vol. II, p. 167.

so sure they had made the right decision? As a matter of fact, the decision at Niagara was truly a trail-blazing one.

There were, of course, some very strong voices of disapproval. Many experienced and capable electrical engineers severely criticized Forbes at the Institution's meeting. The discussion was long and heated. Less than a week before the Cataract company made its final decision, Lord Kelvin, who, as Sir William Thomson, had served as chairman of the International Niagara Commission, cabled President Adams, "'. . . trust you avoid gigantic mistake of adoption of alternate current.'" [29]

The antagonists on either side of the Atlantic fought in different ways. As one English engineer wrote recently: "In England, the weapons were scientific argument and economic facts; in the United States the battle was fought with allegations of positive danger from the use of a.c." [30] Edison was conducting a campaign against a.c. maintaining that it was dangerous. His warnings seemed to be underscored when the New York Legislature chose electricity as a means of execution and chose Westinghouse a.c. generators as the deadly instrument.

Forbes, and all of the people connected with the Cataract Construction Company and the Westinghouse company were correct in seeing that a.c. was the best form for electrical power. The question resolved itself into a technical and economic one. Could a.c. be generated, transmitted, and used so that it gave dependable service? Practical answers and evidence were not lacking. The international electrical exhibition at Frankfurt, Germany, in 1891 displayed the latest advances in electrical technology. One of the main features of the exhibit was an a.c. line for carrying sizable quantities of power from Frankfurt to Lauffen, a distance of 110 miles, and the farthest electric power had been sent so far. Tests upon the line showed an efficiency of transmission of 77 per cent; that is, for every 100 watts fed in at one end of the line only 23 were wasted in the line and the other 77 were delivered as useful power. The success of this line was particularly gratifying to the proponents of a.c. The directors of the Cataract company anxiously awaited the results of the Frankfurt tests and were told of their success in January, 1892.

What the critics of a.c. did not foresee was that electricity would have many more uses than lighting. One of the largest and growing uses of electricity in the United States was for motors on street rail-

[29] Adams, *Niagara Power*, vol. II, p. 256.
[30] Charles Singer, ed., *A History of Technology* (New York and London, 1958), vol. V, pp. 200–201.

way cars. Electric motors were also being used for driving sewing machines and elevators. These diverse uses meant that demand for electricity over a 24-hour period would not vary as much as its use only for lighting. Forbes reported to the Institution of Electrical Engineers, "The officers of the company and myself . . . looking at the purposes for which our machinery is being set up, felt sure that the proportion of electricity which would be used for lighting purposes would not be large, and that we must look upon our whole plant as a *power* producing and distributing plant, and that our object must be to distribute *power* in the most efficient and economical manner." [31]

Time proved Forbes and the directors of the Cataract Construction Company to be more right than they knew. The beginning of the twentieth century marked a sharp increase in the use of electricity for many other things than the light. The constant flow of water down the Niagara River meant that power could be produced continuously for a 24-hour period with hardly any extra cost. The availability of this constant power attracted electric furnace industries producing such commodities as aluminum, abrasives, silicon, and graphite. ALCOA found that Niagara power made the manufacture of aluminum profitable. Niagara power made such electrochemical industries possible for the first time, and these industries in turn provided the constant demand which was to make the Niagara project even more profitable than anticipated.

Forbes submitted his plans for the generators at Niagara, and Westinghouse was asked to construct them. The Westinghouse engineers balked, since Forbes' design was a departure from the standard machine. They would give no guarantee of performance, basing their objection on the fact that they had had more experience in the construction of a.c. generators than the Englishman. As a result, Forbes' revolutionary ideas were tempered with the manufacturing experience of the Westinghouse men to produce generators which performed even better than anticipated. The generators were finished and installed in 1895. Power was being supplied locally in the summer of 1895, and the first transmission of power to Buffalo took place in November, 1896. Years later, when more was known about a.c. generators, a Westinghouse engineer reviewed Forbes' original plans. He found that he would have made no changes, even in the light of advanced knowledge.[32]

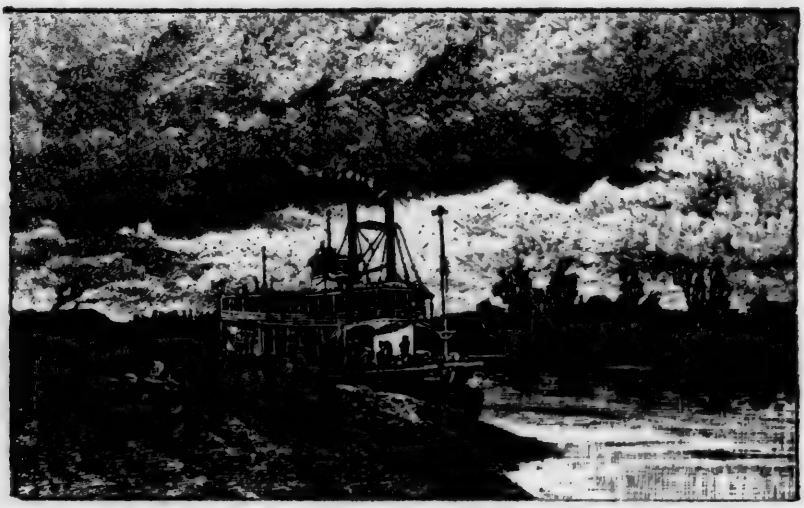
[31] George Forbes, "Electrical Transmission of Power from Niagara Falls," *Journal of the Institution of Electrical Engineers*, vol. XXII (1893), pp. 502–503.

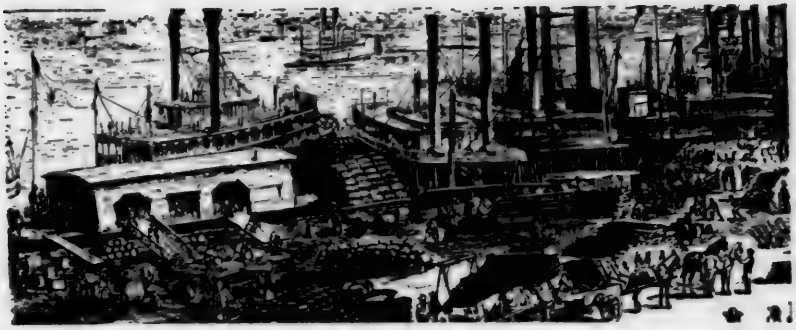
[32] L. B. Stillwell, "Electric Transmission of Power from Niagara," *Transactions of the American Institute of Electrical Engineers*, vol. XVIII (1901), p. 482.

The Cataract Construction Company was voluntarily liquidated in 1899, ten years after its incorporation. At the close of operations, the Niagara Falls power plant was well established. There were eight 5,000 horsepower units in operation. These were providing enough revenue to pay interest charges on $9,000,000 worth of bonds, operating expenses, and still have $100,000 a year surplus. During the ten years of operation, the stockholders of the Cataract Construction Company had paid in a total of $7,044,500, in cash. They received in dividends and cash from subscriptions the following securities of the Niagara Falls Power Company: $8,832,000 first mortgage 5 per cent bonds, $3,974,000 capital stock, at par value, and $289,750 cash.[33]

The plan to produce large quantities of power and distribute it over a distance of 20 miles was a proved success. The engineering world hailed the achievement as representing the coming of age of electrical engineering and a final demonstration of the superiority of the alternating current system over the direct current system. Niagara had pioneered the way in the development of large centralized electric utilities which supplied the power for the twentieth-century expansion of the American economy.

[33] Adams, *Niagara Power*, vol. I, pp. 244–245.





A Note on Continuity of Enterprise

If an "index of continuity" for business enterprise could be constructed, it would show a distinct rise over the years. Reasons for and significance of this trend are examined, and distinctive mortality rates in various kinds of enterprises are identified. Appropriate data, however, have only recently begun to be recorded. With a sound statistical base, some form of enterprise life insurance may be possible; indeed, certain starts have already been made in this direction.

by Arthur H. Cole
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An individual is supposed to wake up on a particular morning and realize that he has really become middle-aged or old. One may reasonably ask whether a change of gradual character, similar to the human frailty of adding on years, may not have occurred to the American economy. I have in mind the shift that seems to have occurred in men's minds from a presumption that business institutions are necessarily ephemeral to one that probably such units will go on living indefinitely.

That men's minds – including those of economists – should have acquired a presumption of brevity for business enterprises is not

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unnatural. For some centuries, a widespread form of business activity in the leading, mercantile segment of contemporary business was the avowedly short-term one of the "venture." In Renaissance Italy, in early modern England, in colonial America, it was common practice for merchants to take shares on commercial undertakings, in the underwriting of marine risks, and the like; and the usage persisted into such later-day activities as prospecting for minerals or the marketing of securities. Again, early industrial units were recognized – and said – to be "shadows" of their innovating founders, and therefore likely to weaken, perhaps disappear, with the passing of their architects. Combinations such as H. P. Hood "and Sons" helped to introduce somewhat greater longevity to a given business institution; while, of course, incorporation, spreading in this country from banks and transportation facilities to industrial and commercial institutions, hotels, newspapers, farms, and other areas, imparted a yet stronger potentiality of long-continuing life.

In the meanwhile, however, it had become the commonly held assumption of economists that business enterprises were bound, sooner or later, to "fail" – with perhaps the habits of human beings and all creations of Mother Nature helping to strengthen the presumption. Marshall made use of his famous analogy of "trees falling in the forest"; while Dewing, a generation later, wrote, relative especially to the corporate enterprise, that "it is illuminating to look at the life history [of such an institution] as consisting of three great periods, analogous to the periods under which the physiographer describes the life cycle of land forms. There is a period of youth in the history of every corporation; there is a period of maturity; and there is a period of old age and decay."

Economists concerned with studying the business cycle found in business "failures" a characteristic, and to some extent a salutary phenomenon of such movements; and historians of business crises expected to ornament their narratives with data on the spectacular "failures" of specific financial institutions, railroads, even industrial enterprises. Galbraith was able, of course, to find phenomena of the latter types in his survey of the depression of the 1930's, but here there was at least the oddity that no failure among major industrial and commercial enterprises was recorded.

Nowadays both the notions of the business world and the thoughts of economists appear to have altered considerably. Library shelves are being enriched by numerous memorial volumes relative to companies that have successfully survived 50 or 100 years, perhaps even longer; associations of 100-year-old firms have come to flourish in

more than one eastern community; and enterprises in ever-increasing numbers make note of their long continuance on stationery or in advertisements – even sometimes in so incongruous a manner as labeling a product "1888 ice cream"! Perhaps all that one need do is (a) to cite Norman S. Buchanan's report on his "examination of the theoretical literature in economics" made 20 years ago, to wit, that "authors have apparently not thought it necessary to define 'failure' or scarcely even to employ the term," and (b) to add that an inspection of a half-dozen textbooks, all written or revised in the 1950's, revealed no case where the topic of "failures" was entered in the index.

Possibly one piece of evidence, actually the rise of a certain accounting practice, might be adduced by the imaginative business historian to indicate that opinion among businessmen – usually believed to be more optimistic than exponents of the "dismal science" – had begun to carry an assumption of the continuity of enterprise as early as the late nineteenth century. At that period, business establishments – and not only those caught up in the "trust movement" – began to make entries of "good will" on the asset side of their balance sheets. Obviously a concern which expected to "fold up" the next month, the next year, even perhaps the next decade, could not expect its bankers or stockholders to take seriously a financial appraisal of projected earning power (capitalized into the form of a continuing asset). There could be no "good will" without continuity.

Actually there still are failures of some note, as are manifested by the series of reorganization plans exhibited in the advisory opinions prepared by the Securities and Exchange Commission (of which more will be said below); and Dun & Bradstreet reported approximately 1,200 concerns with liabilities exceeding $100,000 to have failed annually in the 1955–1959 period. Their average liability over the whole five years amounted to $295,000. However, for enterprises of all sizes that failed in these years the average liability was only $46,000.

Now, of course, a thoroughgoing explanation of this facet of economico-business history would occasion the preparation of a sizable book. One would have to include a history of increasing sophistication anent the phenomenon called the business cycle from Samuel Benner downward, a study of the improvement in business administration, an examination of rising governmental understanding of countercyclical activities, and the like. In this essay, my purposes are much more limited. I wish primarily to lay certain

foundation stones for the larger inquiry, especially "stones" of a historical nature, and to point toward some considerations which would be important in the larger investigation.

I

Cases of the continuance of "failed" firms – in the hands of other proprietors – surely go back into our colonial days: newspapers proved unprofitable and changed hands, and so did southern plantations at times. And legal recognition of the social advantage of such continuance, at least in some circumstances, was indicated over a century ago in one American court. Dewing cites the first such instance – at any rate, the first to his knowledge – as that of the Munroe Railway Company of Georgia in 1846, when the railroad petitioned a court of equity for relief from its accumulated debts, and the petition was granted. Development of this point of view, to be sure, was apparently slow; but, in several instances before 1873, courts had permitted the sale of railroads only under the restriction of a continuance of the lines by the prospective purchasers. Then, after legal and management indecisions relative to the many roads which found themselves in financial difficulties after the crisis of 1873, a definite new approach to the problem was made in 1884, when a major railroad enterprise, the Wabash, St. Louis & Pacific Railway, threw itself into the hands of receivers, and a concrete plan of financial reorganization was finally approved by a federal court. Therewith began more specifically the evolution of what Dewing labels "one of the most original and remarkable achievements of American business genius," orderly relief of railroads which, from the rapidly changing conditions of the American scene and the excessive enthusiasms of American promoters, found themselves in financial troubles. However, perhaps more important for our immediate purpose is the fact that, in this evolving procedure, there was an implied tenet that business institutions of the character of railroads should not be allowed to "fail" in the manner in which our forebears had conceived "failure"; the services of the enterprise could not be spared.

Admittedly there were two phases of contemporary thought which could have influenced the course of judicial preferences at least as greatly as the service to the users of railroads. (Indeed, perhaps in the days of a rampant *caveat emptor*, the position of the ultimate consumer did not count highly in the eyes of contemporary judges.) One of these two other elements was the link between many rail-

roads and the communities which they served: specific lines were pet promotions of specific communities of the Atlantic coast; other lines had become possible only through subscriptions to their stock by state governments, or the cities and towns to which they brought communication with the world. So the judges, who often seem to reflect the mental conditioning of their earlier years, may have felt the railroads in a sense to be "public" from the viewpoint of community investment and community sentiment rather than that of the citizens as consumers and businessmen. Secondly, it appears clear that property – the embodiment of that economic factor, capital, so scarce in our earlier days – commanded greater respect in the courts than it has in recent decades. The petition of an economic unit so large (for those times) as a sizable railroad might have moved the contemporary judges to action as much, say, as in modern days does the petition of a labor union that its members should not be forced to alter their habits of work.

In point of actual fact, especially legal fact, the courts accepted general creditors' bills and proceeded to appoint – and supervise – receivers merely to aid in the conservation of property. When a railroad was temporarily in financial embarrassment – but was not really bankrupt – the court by its temporary protection might be able to conserve the going value of the enterprise. Not infrequently the president of the road was appointed one of the receivers, if more than one person was so designated by the court, even though errors of omission or commission by this officer and his chief collaborators may have been responsible for the financial plight in which the institution found itself. As the chief administrative officer, the president would presumably be more familiar with the practical operating of the concern than anyone else who could be brought in at short notice. Moreover, the receivership, permitting a temporary suspension of some of the normal charges of the company, e.g., payments of interest on its bonds, often allowed the railroad to make improvements in its track or rolling stock or business procedures, which helped to restore earning power by the reduction of operating costs. The going value was actually increased.

Finally, of course, the receivership and the protection of the court were terminated by a judicial sale of the enterprise, a sale to a new company which, under the supervision of the court, distributed various quanta of securities to the creditors and proprietors – that is, primarily to the bond and stockholders – of the earlier corporation. (To be sure, some receiverships ran on for years under the supervision of the court.) Typically, the volume of fixed charges,

principally interest on bonds, was reduced, while the amount of contingent obligations might be increased. The reorganization – as the process was called – aimed at the adjustment of financial obligations in such a manner that, though its creditors would receive in the future more assured, if somewhat reduced payments, the enterprise itself could look forward to continuing for some time as a "going" concern. By and large, such reorganizations were successful in their main purpose, although in some cases, notably the Erie and Rutland Railroads, there occurred a succession of reorganizations, each perhaps preparing the way in some measure for the next one. The Rutland came ultimately into the hands of the concerns that supplied it with coal; and, after a while, the latter became too fearful of financial loss to maintain operations any longer. It was abandoned with the consent of the Interstate Commerce Commission.

Receiverships for American railroad companies in the latter decades of the nineteenth century and through the first half of the twentieth could have appealed to the courts as appropriate on their part by reason of the large size of the companies among our corporations as a whole, and by reason of the wide dispersion in the ownership of their securities, some surely in the hands of individuals incapable of protecting their rights by themselves. However, it seems to me improbable that the courts would have intervened and especially have allowed the practice to become almost customary for periods of financial distress, if merely manufacturing or mercantile enterprises of similar size were involved. Quite surely, if without specific announcement, the judiciary recognized the "public interest" with which the railroads were "cloaked" as vital strands in the total web of business interrelations and as ultimate servants to consumers of goods.

At all events, Congress took action during the parlous period of the 1930's to conserve conditions in the railway network by adding Section 77 to the Bankruptcy Act of 1898. Enacted in 1933 and amended in 1935, this new provision of the legal controls over business difficulties gives statutory position to the proceedings in equity mentioned above. In this legislation, at least in its final form, there were two features which symbolically or materially seem especially important to our present considerations. The element that appears to me largely symbolic in value is the provision that the representative of the court, now called a trustee, should take legal possession of the property; there was to be no question of the position of the court in these proceedings, nor of the seriousness with which it viewed the proper and public aspects of the efforts at readjust-

ment. Materially important, on the other hand, was the interjection of a duty on the part of the Interstate Commerce Commission to play a leading role in all future reorganizations. Previously, a scheme of reorganization had been presented to the Commission at so late a stage in the proceedings that often it could do nothing but consent, however reluctant it might be to act in such a manner. Now the Commission had power in the selection of the trustees, and it was itself charged with the working out of a plan of financial reconstitution for the particular enterprise. (Protective committees still exist but with much less power than in earlier days.)

Surely a bias in favor of continuity of enterprise became broadened in subsequent legislation. In 1934, Congress added Section 77B to the Bankruptcy Act, relative to equity proceedings with respect to industrial and commercial enterprises – legislation which, in amended form, became Chapter X in the revised Industrial Corporation Act of 1938. In this so-called Chandler Act, a Chapter XI was introduced which provided a method even simpler than the foregoing for adjusting unsecured claims. In cases of financial reorganization of any considerable size, the Securities and Exchange Commission is called upon by the judge to render an opinion as to the equity and wisdom of any plans submitted for court approval. Here, as in the case of the comparable provision anent railroads and the duties of the Interstate Commerce Commission, it was the obvious desideratum of Congress not only that the conflicting claims of all interested parties should be adjusted as equitably as possible, but also that, in any financial reorganizations, continuance of the specific enterprise should become assured, at least for an appreciable period.[1]

II

Continuity of enterprise, however, is of more than financial significance. When a hotel or restaurant passes "under new management," or when a manufacturing or mercantile enterprise changes hands, the institution may well preserve the existing business connections with suppliers and distributors, it may maintain the same working force, and it may even be producing or handling the same

[1] These actions by Congress carry an interesting implication. As Robert Masson has pointed out, the formulation of a financial plan in connection with a company reorganization – and the subsequent issuance of securities under that plan – is in essence a business process tantamount to the flotation of a new enterprise: there is a survey of future prospects of the particular concern, and then the determination of the best "security mix" – if I may use that term – among bonds, preferred stocks, and common stocks, which the company can prospectively carry without embarrassment. Yet, in the case of reorganizations, now the governmental agencies offer an implied recommendation of a given "security mix" that was absent at the time of the original flotation of the company.

sort of goods for the same customers. Such indeed seems to have been the course of events in a "case" prepared by Professor Arnold Hosmer for teaching purposes at the Harvard Business School, the chronicle of a sequence typical of events of this sort. In this Sanford Company case, the new proprietor, who had acquired the assets (and liabilities) of the concern for $2.00, confined his cure of the pre-existing unhappy conditions almost exclusively to alterations in internal management: he cut back on the research division, changed the method of selling, endeavored to get subordinates to take greater responsibilities for decisions, etc.

If, accordingly, railroads may be kept running despite financial embarrassment in the treasurer's office, if manufacturing establishments can persist in the employment of personnel and the production of goods despite the need of red ink in the comptroller's reports, the business world is spared the repercussions which a break in the pre-existing skein of business relationships would otherwise have caused, the extent of the disturbance varying, of course, with the size of the enterprise that had gotten itself into difficulties. The series of repercussions which a sudden closing of the doors of General Motors or General Electric would touch off is almost inconceivable; but the damage to the whole country would surely be tremendous.

Therefore, insofar as business and legal institutions have conspired to permit continuance of operations in the face of financial adversities, "conservation of energy" in a modest form has, it seems, been introduced into the procedures of the economic world. Particularly important in these circumstances is the preservation of the achievements of entrepreneurs, not only those in the creation and expansion of the visible productive or service institution, but also those in the invisible networks of relationships – to suppliers, selling agencies, sources of financial or other aid, trade associations, etc., which are no less necessary to the performance of the whole enterprise than the bricks and mortar, machinery, and labor force, which attract major attention of economists.

In view of the marked evolution of the entrepreneurial web over the last century, and of the great enhancement of the stock of funds for entrepreneurial action, it seems highly probable that the index of continuity among enterprises – if I may suggest such a measure – would show an appreciable rise over the decades. There has been an increase in the body of men and women, dispersed more widely over the country, who have stood ready to take over concerns that have faltered financially under previous management; while both

banks and individuals with savings to risk have grown in number and also in geographical dispersion. Even apart from the "trust movement," as usually conceived, there has been the added element that, over the last half-century or more, prosperous enterprises were glad to become larger by the absorption of competing or ancillary concerns that were heading for financial difficulties; but, as the old writer of yarns used to put it, that is another story.

Surely we have no over-all historical data to support an impression of increasing continuity of enterprise. Oddly enough, the federal Census could bother to count every cow on every farm of the country, but could not stop to record the number of independent businesses in the economy. Accordingly, we have no figure of the total business "population" against which to plot alterations in the number of failures and of continuities. On the other hand, the only long-term data on business life spans – births and deaths – are those prepared by Dun & Bradstreet, again not by government; and the primary interest of this establishment (and of its predecessor concerns) has always been the ascertainment of the credit position of business enterprises. This financial reporting house actually defines "failures" as situations where concerns become "involved in court proceedings or voluntary actions, probably ending in loss to creditors." Hence, its attention has been placed mainly upon the appearance of new concerns, whatever their origin, and the disappearance of pre-existing enterprises, whatever their economic fate. The clients of Dun & Bradstreet wished usually to learn merely whether a concern of a given name existed in a given city or town of the country, and what was its credit rating. The calculation of total "births" and "deaths" was a somewhat late afterthought of the R. G. Dun Company, compiled primarily as a useful indicator of changing general business conditions.

At all events, it is apparent that we have no bases for the computation of an index with a time dimension – neither the total "population" nor the element of change in that "population." We do have some recent information – this happily from governmental sources. The federal Census has, since 1951, collected data on the "number of firms in operation," and data for the three categories of "new businesses," "discontinued businesses," and "transferred businesses." Moreover, these various data are broken down by important industries: mining and quarrying; contract construction; wholesale trade; etc. In time we shall know more about the performance of the economy from the viewpoint of business.

A report on the experience of total American business in the 1951–

1956 period – published in 1959 – revealed that, as against an aggregate of "firms in operation" rising from 4,000,000 to nearly 4,400,000 between the end years, the period had witnessed the birth of 1,798,000 new businesses, had seen 1,484,000 concerns "discontinued," and showed a record of 1,861,000 firms "transferred." In other words, the evidence of this limited era makes manifest that, at least in these years, it was somewhat more likely for an enterprise to be continued than to disappear, and that such continued enterprises equaled the number which could be differentiated as "new."

Actually, some of the differences in experience of the diverse sections of American business are illuminating. For example, if one looks at the ratio between the numbers of "transferred" and "new" concerns, one finds that, while this proportion for all industries runs at 104 per cent, it is as low as 21 for contract construction and 46 for mining, quarrying, and the like, but as high as 178 for retail trade. If one attempts to penetrate more deeply and examines the information provided for breakdowns of certain categories – manufacturing, retail trade, and service industries – he observes much the same complement of forces at work. He learns that the likelihood of transfers taking place runs low in the manufacture of lumber products and electrical machinery, in the retail disposition of appliances and of home furnishings, and in such a "service" subgroup as "business services." On the other hand, the ratio of transferences to new establishments runs high in the cases of the manufacture of processed foods, in printing and publishing, in the retail selling of foods and of liquors, and in the service subgroup of hotels. Apparently the lack of substantial assets – as when coal seams or veins of metal have already been well exploited – militates against transference of ownership and continuance of the enterprise; and the same force may be operative in the case of wood products or electrical apparatus in the manufacturing field: products are based on individual styling or upon patents of specialized items. Again, it is apparently futile to try to transfer the "good will" built up in and now adhering to so very personalized a line of activity as the sale of house furnishings or the provision of business advice. In the latter cases, it is seemingly just as well to start afresh. On the other hand, in lines where location counts for much – as with "convenience" goods such as foods or with hotels – or where experience is especially important, as in printing and publishing, enterprises are not allowed often to disappear completely; someone finds it advantageous to attempt to carry on at the same place and presumably with much the same

organization. And it is wholly reasonable to believe that, even if continuity has increased in the scales of probability over the decades, this trend may well be selective among branches of business.

This attempt by the Bureau of the Census to ascertain at least a few facts about business mortality and business continuity offers two aspects to the social scientist interested in change. On the one hand, it seems to present the possibility that, in time, it may become feasible either for insurance companies or for government to tender to new entrants into the business world the sort of protection that they do now against the hazards of losing one's possessions by theft or losing one's life in an automobile crash. In a sense, of course, commercial and investment bankers have been extending such coverage in part through the grants of loans – the premium appearing as the extra percentage in the interest rate above that of "pure" interest – while the courts, at least over the past century or more, have regulated collection by "beneficiaries" under an indefinite and unwritten "policy" through their supervision of bankruptcy proceedings. However, something more regular and dependable may possibly be anticipated for the future.

Perhaps as intriguing is the other side of the coin: the question why progress has been so slow in this area of insurance. To be sure, the bias of the economists prevailed so strongly in the chief statistical agency of the federal government, the Bureau of the Census, that no count of business institutions was made until 1935; but the effort to secure reasonably adequate current data on failures in business had to wait another 15 years. Perhaps because of a lack of the study of business within the expanding field of economics, the hypothesis persisted that all "business" was that of the mercantile, and that all commerce was conducted in the manner of the eastern bazaar. Adam Smith had made varied caustic remarks about "the mean rapacity, the monopolizing spirit of merchants and manufacturers" and "the sneaking arts of underling tradesmen," in his path-breaking book in political economy; and his descendants in the area of economics have been generally content to take his appraisal of businessmen. And if the latter are – and always have been – unboundedly dishonest, obviously no insurance system could operate long. However, it is possible to argue against this concept, in fact, to assert that somehow there has grown up in the United States – and at present exists – the largest network or interdependency of mutual trust with less expenditure on detectives and police, than has obtained elsewhere in the world – except possibly in the Roman Catholic Church. Retailer and wholesaler, advertis-

ing agent, machine builder, management counselor, banker, newspaper publisher, and all are tied together in a gigantic web of expectations and reciprocal confidences. Otherwise the whole machine would break down. And in such circumstances, the dereliction of a few businessmen could be no more important for the estimate of risks of business failure than, in the handling of fire insurance one has to take into account the fact that a few people, each year, are going to burn down their own property in order hopefully to collect the principal of their insurance policies. Indeed, one branch of insurance, that against loss by theft, manages to carry along even if entirely based on the propensities in human wickedness!

Actually one can record hesitating and very modest steps by the more adventurous in the insurance field to associate themselves with the presumption in the business area – if not in economic thinking – that "the show must go on," so to speak. As long ago as 1837, a plan was outlined for the insurance of commercial enterprises against losses from bad debts – a scheme probably derived from the system of safety-fund banking at that time recently adopted by New York State and being considered elsewhere. By 1870 a start in the writing of such insurance was being made in England; an equivalent action was under way in the United States by the middle 1880's and early 1890's; and some insurance of this type has been written ever since that time. Some companies withdrew from the field as a consequence of experience during the depression of the 1930's; but two concerns have persisted and share the business. The general basis of their procedures is to use the credit experience of the individual company to determine normal or expectable losses from the expansion of credit to customers; this amount of loss the company is expected to absorb out of future income; and the insurance enterprise, in return for a premium, agrees to cover additional losses. If the insurance companies had data upon credit experience equivalent to the London "bills of mortality" upon the statistical record of which life insurance took its start, perhaps they could go further in helping commercial enterprises to achieve greater continuity of operations.

A second form of insurance protection has arisen in the extension of insurance against "interruption." This form appears to have been attempted in Europe in the middle decades of the nineteenth century, and to have been taken up in this country at the very close of that century. As yet the main hazard against which protection

is given is that of fire, but "interruption" in consequence of tornadoes or other natural forces is also envisaged and covered. Protection is not given against such man-made interruptions as those caused by labor disputes or war. Still a considerable number of business enterprises, especially retail establishments, have embraced this aid toward continued life.

Thirdly, a type of insurance protection which is also aimed at the same goal and which has lately taken to itself the presumptuous name of "business insurance," has made considerable progress. This variety of insurance seeks to cushion the effects upon individual enterprises that may derive from the death of the chief executive or executives thereof. Although known in Europe at least spasmodically from earlier times, it seems to have come into appreciable use in this country only in the years around 1910; and this phenomenon may perhaps be associated with the fact that at about this period the top executives of our first large "combinations" were then reaching ages when continued life had become somewhat uncertain. At all events, the practice of placing life insurance upon the men actually running enterprises, whether owners or not, has spread considerably, even within the group of large bureaucratic concerns where, at least in theory, the consequences of one man's passing would seem less likely to be disastrous than in smaller and younger enterprises. A variant form, sometimes called "life insurance trusts" and appropriate, it seems, chiefly to partnerships or small enterprises, provides insurance on the lives of all partners or chief figures, ultimate payments from which enable the surviving individuals to purchase the shares or interest of the deceased or to train a successor in the work that he shouldered. In this third manner, then, the continuity of enterprise is in some measure bolstered.

Possibly no inquiry in the area of economics deserves greater support – from such foundations as Ford and Rockefeller – than an attempt under the auspices of the Council on Research in Economic History to make up, as far as possible, for the neglect of attention by government inquiries, to business change over the past century, and another by the National Bureau of Economic Research to study intensively the experience over recent years of various categories of business institutions: how many "failures" of what sorts, how much salvage of economic potential, what differences in such matters among the varied principal lines of business activity, etc.; in other words, how effectively does the tendency

toward the "conservation of energy" appear to operate in the American business world.

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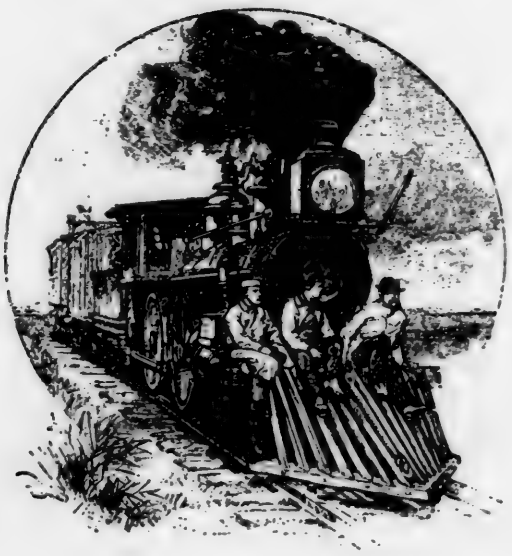

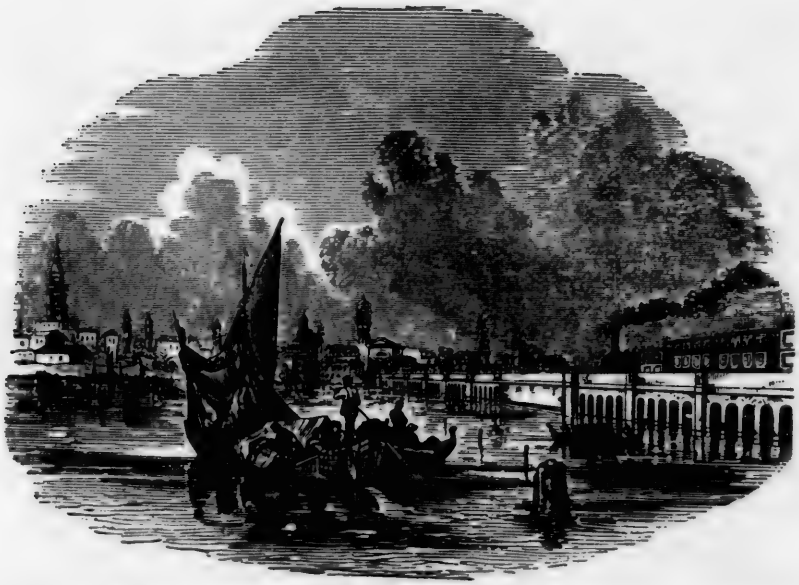

Problems of French Investment in Italian Railways

A Document of 1868

French investors, their undertakings in Italy oppressed by "an unbelievable mixture of ignorance, government anarchy, and bad faith," appealed for intervention by their government. The controversy gave rise to a remarkable report depicting the condition of Italian railroads and giving vital evidence about government-business relationships of the day.

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Italy entered the railway age in 1838. A French *société en commandite*, Bayard de la Vigntrie et Compagnie, obtained a charter in 1837 from the Kingdom of the Two Sicilies for a short line from Naples to Nocera and Castelamar, around the Bay of Naples.[1] The following year the company opened the first

[1] "Chemin de fer de Naples à Nocera et à Castelamar," *Prospectus* (Paris, 1837).

section of its line, eight kilometers from Naples to Porticci, which it subsequently extended to the intended termini and to Salerno.

In spite of this relatively early beginning – only three Continental countries had operating steam railways before 1838 – railways made little progress in Italy. Divided among several petty, impoverished, and mutually antagonistic principalities, the peninsula offered scant inducement despite its great need for improved transport facilities. Camillo di Cavour, writing in 1846 as a private citizen and part-time railway promoter, predicted in a remarkable article that railways would bring material progress and thence national unity;[2] but after more than a decade in which benighted governments and the scarcity of capital threatened to hamstring all progress (except in Piedmont, where Cavour as prime minister pushed construction of a state-owned trunk line and simultaneously offered liberal inducements to private enterprise, both foreign and domestic), Cavour's impatient genius led him to intrigue for unification as a means of obtaining both railways and progress. At the proclamation of the Kingdom of Italy in 1861, the entire Italian peninsula contained less than 2,000 kilometers of operating railways. Even these were divided into several disjointed fragments, concentrated mainly in the north; Piedmont alone accounted for half the total trackage. Most had been built and financed by French and British engineers and capital.[3]

The new government made strenuous efforts to extend and rationalize the railway network, but the deplorable state of its finances, the general poverty of the country, and lingering regional antagonisms hampered it at every turn. Moreover, though foreign assistance, technical as well as financial, was essential to the rapid development of the network, the rampant nationalism and xenophobia of parliamentarians and the general public threatened to overturn every scheme which the government devised to attract and retain such assistance. At length, in 1865, the government pushed through a bill providing for the reorganization of all railways in the nation under the control of four main companies, each with its own regional network.

In the north, James de Rothschild of Paris controlled the Upper Italian Railway (*Strade ferrate dell' Alta Italia*), formed in 1856

[2] Camillo Benso di Cavour, "Des chemins de fer en Italie," *Revue nouvelle*, vol. VIII (1846); reprinted in Domenico Zanichelli, ed., *Gli scritti del Conte de Cavour* (2 vols.; Bologna, 1892).

[3] Rondo E. Cameron, *France and the Economic Development of Europe, 1800–1914* (Princeton, 1961), chap. 10. This work provides the background and more extensive details on the subject of this introductory note.

SWITZERLAND
FRANCE
AUSTRIA
SUSA
MILAN
TURIN
VERONA
MANTUA
PADUA
VENICE
TRIESTE
CREMONA
GENOA
NICE
BOLOGNA
RAVENNA
PISA
LEGHORN
FLORENCE
ANCONA
ADRIATIC SEA
ROME
NAPLES
SALERNO
BARI
BRINDISI
TARANTO
OTRANTO
ITALIAN RAILWAYS
IN 1868
PALERMO
MESSINA
REGGIO
SYRACUSE
AFRICA
Completed
Under Construction
0 50 100
SCALE IN MILES

as the Lombard-Venetian and Central Italian Railway with charters from Austria and the duchies for lines from Milan to Venice and south to Bologna and Florence, and enlarged in 1858 with the acquisition of the South Austrian line from Vienna to Trieste and Venice. The Treaty of Zurich of 1859 separated the company legally into two, but with a common body of stockholders and a unitary "committee of Paris" exercising financial control. The law of 1865 renamed the Italian section, sold the state network in Piedmont to it, and allowed it to purchase the remaining private companies in its territory.

The "Mediterranean network" took over the name and properties of the former Roman Railway Company, which became its nucleus. This company had also been formed in 1856 by a group of French capitalists with a charter from the government of the Pope for lines throughout the Papal States. The separation of Umbria and the Marches from the Papal States in 1859–1860 placed its legal status in doubt, and in 1861 the failure of its banker and principal promoter, the financier Jules Mirès, left its finances in grave disorder; but a leading Paris joint stock bank, the Société Générale de Crédit Industriel, took control and reached agreement with both governments for completion of the lines. The law of 1865 required it to absorb the small Tuscan companies, and also gave it the charter for the strategically important but expensive line along the Ligurian coast from Genoa to France.

The Southern, or *Meridionale*, Railway had been formed in 1862 by Count Pietro Bastogi, a Leghorn banker, politician, and former finance minister, with a charter for lines throughout the former Neapolitan provinces, still almost totally deprived of modern transportation except for the original French company of 1837. Touting itself as an "all-Italian" company, it was Italian in name and appearance only; in fact, almost all its capital came from French financiers and banks, including the Crédit Industriel. In 1863 it absorbed the Naples-Nocera-Castelamar, and the law of 1865 gave it a further concession for the extension of its Adriatic line from Ancona to Bologna.

The charter for the final regional network, in Calabria and Sicily where no railways at all had been built, went to the Victor Emmanuel Railway Company. Founded in 1852 by the French promoter Charles Laffitte with a charter for a line in Savoy, subsequently extended via Mont Cenis to Turin and the Ticino River, this company also found itself under dual sovereignty as a result

of the annexation of Savoy by France. Pressured into selling its lines on French territory to the Paris-Lyon-Mediterranée, it agreed to exchange its network in Piedmont (which went to the Upper Italian) for the new concession in Sicily and Calabria.

Of these companies only the Upper Italian offered immediate prospects for profit. Located in the most prosperous and densely populated part of the nation, its operating revenues amounted to more than twice as much as those of all other companies combined. It had already raised most of its capital and constructed the greater part of its lines, whereas the other companies still had to obtain capital under onerous conditions and build their most difficult lines. The government, anxious to push new construction for both political and economic reasons but unable to provide direct subsidies large enough to finance construction in advance of the economic demand, offered kilometric guarantees of revenue on each new section as it came into operation. But in doing this it linked the credit of the companies directly with the credit of the state. When the Italian 5 per cent *rente* fell to less than 36 per cent of par on the Paris Bourse during the War of 1866, the railway bonds which had been selling with difficulty in the vicinity of 200 francs (par value 500 francs) became almost unsalable at any price. Since the companies depended upon the sale of bonds to obtain capital for new construction, the government came to their assistance with short-term advances in the form of Italian treasury bonds which the companies discounted in Paris at rates from 12 to 15 per cent. Such measures merely postponed the day of reckoning, however, and in 1867 the government introduced a bill calling for the nationalization of all railways except the Upper Italian.

Alarmed by this and other manifestations of hostility toward foreign capital in the Italian parliament and press, French investors appealed to their government for diplomatic support in their effort to obtain what they regarded as equitable treatment. The Marquis d'Audiffret, a senator of the Empire and president of the Crédit Industriel, acted as their spokesman.[4] Moustier, the French foreign minister, to whom the Minister of Public Works forwarded the appeal with favorable comment, replied that "In principle, we could not without assuming a grave responsibility exercise direct intervention on the occasion of questions of this nature . . . . I have nevertheless communicated . . . [with the ambassador] to engage unofficially the cabinet in Florence in order to remedy a situation

[4] Marquis d'Audiffret to Minister of Public Works, Paris, Jan. 31, 1868: Archives Nationales (Paris), F 14. 8599.

which in causing injury to these very respectable private interests could not fail to have unpleasant consequences for the Royal Government [of Italy] itself." [5]

The Italian ministry professed its willingness to seek a satisfactory solution to the problem, but the situation had in fact deteriorated beyond its power to control. In the summer of 1868 the Victor Emmanuel Company accepted the offer of the government to purchase its property and concession for what amounted to an annuity of 1 per cent of its paid-in capital. The Roman Company held out longer, but after the occupation of Rome in 1870 the Italian government embarked frankly on a policy of "Italianization" which, after much parliamentary wrangling, finally resulted in the dissolution of the company in 1881. The Upper Italian, although in prosperous financial condition, also suffered from harassment and sold its lines to the government in 1875. Only the *Meridionale*, in which influential Italians possessed a greater interest, survived. The state did eventually repurchase its lines, but on terms advantageous to the company; and under a new name, the Adriatic Railway Company, it operated on lease the most profitable lines belonging to the state, including those taken over from the Upper Italian.

The following document is a "Confidential Note" submitted by the Marquis d'Audiffret at the time of his request for French intervention. Its interest arises from several considerations. It offers proof of the extensive part played by French capital in the establishment of Italian railways. It presents evidence of the close ties between government and business in the nineteenth century, and is itself a portion of the evidence of an unusual case of diplomatic intervention with a major power in behalf of private business interests: as such it lends perspective to recent instances of difficulties between foreign investors and the governments of contemporary underdeveloped countries. Lastly – the consideration which justifies its rather lengthy reproduction – it gives a brief, clear picture not elsewhere readily available of the difficulties, financial and otherwise, which beset railways of the peninsula in the first decade of Italian unity. (Despite the obviously partisan position of the author of the note, the facts were substantially as presented.)

The original document, located in the Archives Nationales in Paris, *soussérie* F 14 (public works), *liasse* 8599, consists of 37 manuscript pages including a four-page resumé. It is here translated without the resumé and supplied with explanatory footnotes.

[5] Moustier to Minister of Public Works, Paris, March 4, 1868: AN. F 14. 8599.

Confidential Note

I

The present constitution of Italian railways. In the beginning, railways in Italy were constructed without order and without system, here by private industry, there by the state. It was not until 1863 that the government presented to parliament a bill for the purpose of dividing Italy among four principal networks. This project rested upon the general interest of the country "in possessing powerful companies capable of completing the construction and operating a number of important lines."

This bill was made into law following the approval of the Italian parliament May 14, 1865, after several months of work and discussion. It gave to four companies the four principal groups of lines, existing or to be constructed.

To the Upper Italian Company, already proprietor of the lines of Lombardy and South Austria, belonged the exploitation of the sections from Genoa to Turin, from Mont Cenis to Milan and Venice, and from Alexandria to Parma, Piacenza, Bologna, and Verona, in order to connect Italy with Germany by way of the lines of Trieste and the Tyrol. The Meridional Company was given the right to operate or to construct the lines from Bologna to Ancona, from Bari to Taranto, from Ancona to Otranto along the littoral of the Adriatic, and various branches situated in the Neapolitan provinces. The Roman Railway Company became concessionaire of the Mediterranean lines from the frontier of France to Naples by way of Liguria, Genoa, Leghorn, the Maremna, Civita Vecchia, and Rome. It was, moreover, charged with the operation of the lines of Tuscany, which connect with the section from Rome to Ancona, as well as the lines of which it was already the concessionaire in the Pontifical States. Finally, the Victor Emmanuel Railway Company, after having sold to the state its Italian network from Susa to Turin, which in its turn ceded it to the Upper Italian Company, became concessionaire under the name of the Calabro-Sicilian Railway Company of the lines to be constructed in Calabria and Sicily.

We will not treat of the Upper Italian Company which, by reason of the constitution of its old Lombard network and the purchase of the very important line from Genoa to Turin, finds itself in a special situation with regard to the state. We will concern ourselves only with the companies of which the kilometric subsidies paid by Italy form the principal, and in certain cases the only, resources. Those subsidies amount annually: (1) for the Meridional Railway Company, to 22,000 Italian lire per kilometer; [6] (2) for the Roman Railway Company, to 13,250 lire per kilometer; (3) for the Calabro-Sicilian Company, to 14,000 francs. This constitutes at present a total charge for the Italian treasury of about 44,085,000 francs,[7] which must increase from year to year until the sections presently under construction have been completed and opened to exploitation.

[6] One lira was the equivalent of one French franc, worth approximately 20 cents at the pre-1914 par.

[7] The total budget for 1868 amounted to more than a billion lire with a deficit of almost 25 per cent.

The situation of these diverse companies was very different: to some belonged lines already constructed for the most part; others were charged, on the contrary, with undertaking long and expensive works. One network lay in rich and populous areas, while another crossed mountainous regions deprived of both cultivation and population. In order to equalize these various situations, the state, not wishing to augment the figure of its inscribed debt, accorded to the companies a kilometric subsidy based on a calculation of the probable expenses and revenues of each enterprise. It was thus that the conventions which regulate the situations of the . . . [companies] . . . were concluded.

II

The influence of the Italian financial and political crisis on the railways. Each of the railway companies had its capital stock entirely absorbed prior to the interposition of the law which set up the present networks. The only resource which the companies could use in order to fulfill their engagements was the issue of bonds, the sale of which, particularly in France, was at the time quite strong. As the revenues of each company derive almost entirely from the state subsidies, and not from its traffic, there exists between the credit of the state and the price of Italian railway bonds a direct connection which no one can deny. The profound discredit into which the Italian *rente* has fallen [8] rendered the sale of the bonds at first very onerous; then their sale became impossible; and the companies found themselves with incompleted, therefore unproductive, works, without any means for their continuation.

No one will deny that there were factors alien to the companies, and for which the state alone is morally and materially responsible, which have shattered, from the point of view of both law and equity, the fundamental conditions of the treaties between the state and these companies. Their bonds, the sole resource with which the companies can fulfill their obligations, have moreover been directly damaged by measures which the state has imposed upon the companies: these are the tax on personalty, the tenth of the proceeds of traffic revenues, the forced loans, and the exactments of every nature which for the year 1867 reduced by five million francs the sum total of eighteen million which the state had to pay, for example, to the Roman Railway Company in accordance with the treaties. Moreover, that sum was paid in paper [money], which presently loses 16 per cent,[9] and will doubtless soon lose more, the companies being obliged to acquit in gold the debts which they have contracted abroad.

The economy of the conventions thus finds itself completely overturned. The capital necessary for the completion of the construction being impossible to find, or rather the state furnishing it itself at a rate of 12 to 15 per cent in place of the 7 per cent which served as a base for the conventions, the kilometric cost of the roads is considerably above the calculations which had been made. And while the charges grow thus in an enormous proportion, Italy retrieves in the form of taxes or in some other manner a part of the subsidies which it accorded at a time when,

[8] In 1866 the 5 per cent Italian *rente* fell to 36 per cent of par on the Paris Bourse, its principal market; in 1867 and 1868 the average course was less than 50 per cent.

[9] Italian banknotes were given legal tender status and their redemption in specie prohibited as an emergency measure in 1866. Convertibility was not resumed until 1881.

and on the faith of which, capital was engaged in the construction of the railways. Thus, each day, under the empire of the facts which we have just related, the Italian companies move fatally toward their ruin.

Is Italy disposed to make equitable reparations for the great harm suffered by so many private interests? Or rather, profiting from a distress of which it is the primary cause, does it desire to confiscate the private capital which has contributed to the constitution of a work so useful to the country, and to annex the railroads by procedures identical to those which it has already employed in its other annexations? In no other country would the question be at issue. In Italy, it is to be feared that the most violent and iniquitous solution will not fail to receive the greatest number of votes. This accusation is serious, but we, unhappily, believe ourselves to be in a position to justify it.

III

Dispositions of the Italian administration and parliament with regard to the railway companies and the capital engaged in them. Two currents of opinion are at present abroad in Italy:

Equitable solutions find a favorable reception among the Conservative ministers, such as General Menabrea, who was the author of the law of 14 May 1865. Before him the Ricasoli ministry and even the Rattazzi ministry showed themselves to be animated by the same dispositions.

But what can be done in Italy by transitory ministers, frequently chosen by chance, of whom many are without special knowledge, and who arrive in power with honest intentions but without authority or sufficient energy to put them into execution? In such a situation the omnipotence of the bureaucrats and parliament overrides the best intentions of the ministers.

What would happen if, by one of those changes which are only too likely to occur, the power were temporarily lodged with a revolutionary segment happy to take revenge on French capital for its recent frustrations? The Italian administration viewed with a displeasure which no one has forgotten the loss of the state-operated lines.[10] It hopes to repair the blow which its interests have received by hastening the fall of all the companies which depend upon it.

This double current of opinions and interests explains the contradiction which exists between the principle of giving aid to the companies and the Leonine conditions under which the aid is offered. We will present but a single example, that presented by the Convention of 11 October 1866 between the state and the Roman Railway Company.

The payment of interest on bonds was already in arrears at the time the convention was signed, and another coupon was about to fall due. In such a difficult situation, the board of directors was without means to resist the most iniquitous attempts of the Italian administration. The principle of giving aid to the companies had been adopted by the parliament, and the ministry, invested with special powers, was charged with implementing it.

[10] Presumably the statement regarding Italian "revenge" refers to the humiliation of selling the lines in Piedmont to Rothschild's Upper Italian in 1865, required by financial necessity; but it may also be intended to call to mind the efforts of the French government to prevent the Italian occupation of Rome.

The ministry was favorably disposed, but the bureaucrats were determined to restrain or to denature the effects of this good will. It suffices to read the convention to be struck by the contradictions of which it is composed: of the sum of 30,000,000 francs advanced to the company at a rate of 12 per cent, more than 5,000,000 were earmarked for the repayment of sums due the state. The question of Liguria, in which the government had not fulfilled any of its obligations, was terminated by an arbitrary transaction which puts immediately at the charge of a company already at the end of its resources the very heavy interest payments on the sums which the state is advancing for the construction of the lines from the French frontier to La Spezia.[11]

And while the budgetary equilibrium of the company, already upset by the causes which we have indicated above, receives this new shock, the state insists meticulously on the clauses which must deliver to it the assets and all the resources of the company.

These precautions do not suffice, however, and every day the bureaucrats busy themselves in preparing a revision of the statutes with the aim of destroying the French representation on the board of directors and the general assemblies of stockholders, which constitutes the only obstacle to the work of injustice and spoliation which is being secretly prepared.

Is the parliament animated by more honest views and a better spirit? On this subject, it is convenient to recall that the Rattazzi ministry, pressed by various events, consented June 13, 1867, to present to the legislature a bill for the repurchase of the railways. It requested authorization to negotiate without surpassing a maximum limited by the net revenues of each company, and "without a greater charge upon the state resulting from the treaties." Thus, the net revenue of the Roman Company being composed of (1) the kilometric subsidies and the guarantees of net product of the Pontifical government, estimated at 22,000,000 francs; and (2) the net product of the traffic, estimated at 8,000,000 francs, the state would repurchase the Roman lines by means of 30,000,000 francs of 3 per cent *rentes*.

On this hypothesis the bondholders would receive the equivalent, or near it, of their present revenue. The excedent of the disposable *rentes* would have to be sold at their present low prices in order to extinguish the floating debt of the company, in such a manner that there would remain very little for the unhappy stockholders.

This arrangement was, one will recognize, all to the advantage of the state, as it placed in its hands and without any sacrifice on its part a free property producing today approximately 8,000,000 francs, against a forced loan at 5 per cent imposed upon the creditors of the Roman Company. It is to be believed, nevertheless, that such an arrangement

[11] This appears to be the only serious misstatement of fact in the entire note. By the treaties sanctioned in the law of 1863 the state ceded to the company the line then in construction between the French frontier and Massa along the Ligurian coast, in return for which the company agreed to reimburse the state for the expenditures already made, less 38 million francs contributed by the state as a subsidy. But the company was unable to fulfill *its* obligations, and by the Convention of 1866 the state once more took over construction of the line. In order to do this it issued new government securities and deducted from its subsidy to the company a sum equivalent to the interest on them. Under the Convention of 1868, to which this note was a prelude, the company retroceded to the state full title to the line in return for restitution of the sums withheld for interest payments.

would have been accepted by the interested parties, as putting an end to the inextricable situation in which so many interests are engaged.

It is both curious and sad to read in the report presented to the Italian parliament June 13, 1867, the reasons of the commission for rejecting the bill which the government has just recently killed again. Without entering into an examination of the causes which trouble the great railway industry of Italy, the commission is of the opinion that it is necessary to let the companies fail, proclaim their bankruptcy, then decide upon a course of action which best conforms to the interests of the state. It did, however, issue the opinion that those companies which, out of fear of bankruptcy, would lend themselves to reasonable arrangements might treat with the government, subject to the ratification of parliament. And, in order that the companies would not be ignorant of the fate which awaits them, the commission discussed, not without favor, the proposition made within its councils which would give the companies 5 per cent *rentes* equal to 75 per cent of their present net revenue (subsidies and traffic), which would produce on account of the Roman Company alone a net gain to the state of seven million francs.

These ideas are, happily, as monstrous from the point of view of law as from the point of view of equity; but they indicate deplorable tendencies, an unbelievable mixture of ignorance, governmental anarchy, and bad faith. They are preparing for French capital an inevitable catastrophe, if public opinion and the French government do not energetically combat such attempts at spoliation.

IV

Situation of the various companies which are menaced by the tendencies of the power in Italy. The summary procedures with which certain members of the Italian parliament hope to erase an annual budget charge of about 44,085,000 francs and acquire at so little expense the lines which have cost more than a billion do not menace all the Italian companies to the same degree. One of them, the Meridional Company, has in Italy the major part of its stockholders. It is powerfully represented in parliament, and a recent treaty by which the state advanced it a sum of forty millions on kilometric subsidies not yet due has put it fifteen or eighteen months away from any threat of dispossession.

It is against the Calabro-Sicilian Company and the Roman Company, in which the French interests are so largely and so unhappily compromised, that the manoeuvres and intrigues which we intend to unveil are principally directed.

The Calabro-Sicilian Company, formerly the Victor Emmanuel, has given rise in its stockholders' assemblies and on the occasion of debates in the Corps Législatif to discussions which have shed light on the unhappy fate of the capital engaged in it. It would be useless to recall the formation of the new company, the irregular arrangements to which the government lent its concourse, and the changes to which the object of the company was subjected; bogged down by lack of funds in construction which it was forced to continue, the company was deprived of the kilometric subsidies attributable to the sections which it had already constructed, and of the repayment of the expenditures which it had

made on lines which circumstances beyond its control would prevent it from completing.

The situation of the Roman Railway Company is altogether different; it will be convenient to specify this and to indicate its true character. The Roman Company was formed by the fusion of three Tuscan companies and the original French company which was the concessionaire of the lines established on the former Pontifical territory. Following the annexation of several of the provinces of the Holy See by the Kingdom of Italy, the Roman Company saw its network divided into two parts, one on the new Italian territory, the other on the present territory of the States of the Church. The position of the network dependent upon the Italian government is regulated by the stipulations of the law of 14 May 1865; the other is still under the regime of the conditions of the original concession accorded by the Pontifical government.

One can easily understand that this situation of a company dependent upon two governments, each jealous of its prerogatives, must be prolific in political and financial difficulties; it would take too long to enumerate these difficulties, and perhaps would be very difficult to give an exact idea of them. This fatal complication is aggravated by embarrassments growing out of the special regime enjoyed by the Tuscan companies before the fusion with the Roman Company, which was required by the Italian government.

The securities of these companies were directly guaranteed. The obligations which the government of the Grand Duke of Tuscany assumed in this regard, and which Italy had to accept in its turn, were increased at the time of the annexation of Tuscany by the decision of Baron Ricasoli, at that time invested with the full powers of the king, to give to the stockholders of the Tuscan Railway Company the guarantee of interest which until then had been accorded only to the bondholders.

The Tuscan companies had no intention at the time of fusion of alienating any of the special advantages which they enjoyed; as time was short for combining in a single act such different situations, it was decided that each of the merged companies would be provisionally regulated by its own statutes until a single regime could be adopted. Until the month of May, 1870, the term fixed by the law, each network is administered by its own board of directors, and a mixed commission was formed to deal with questions of common interest.

By reason of these prior conventions, the state withholds from the sums which it owes the Roman Company, first, the amount of its direct guarantee, which is about 12,000,000 francs per year. It is only with the disposable balance that the creditors of the Roman Company, and notably the holders of bonds not directly guaranteed, are paid.

This explanation was necessary in order to make clear how in the Roman Company the Tuscan securities, which are placed for the most part in Italy, are regularly paid when due, while the securities held in France are not paid unless there is a disposable balance remaining in the disputed accounts of the company with the state.

The Italian element, entirely uninterested in the debates, does not feel any need to help settle the surging difficulties. The guarantee of the state is the only advantage to which they pretend, and until this guaran-

tee is challenged they remain unmoved by any tendencies which threaten exclusively the foreign element. It is easy to understand the difficulties and incoherence in the administration of the company, when the half of the deliberative body representing it which could defend it the best and is nearest to the seat of activities, is uninterested in the difficulties which arise and often disposed to go along with the government in its evil intentions. In time, the financial prosperity of Italy should attenuate these difficulties or cause them to disappear. The present precarious circumstances, on the contrary, aggravate them.

The board of directors sitting at Paris is, however, an obstacle to excessive abuses, and the only safeguard of the French interests; therefore, it is against this board and the general assembly of stockholders at Paris that all the efforts of the Italian administration are directed at present. The day when these efforts are crowned with success the last guarantee of the French stockholders and creditors will disappear.

In attacking thusly the present organization without bothering about the origin and character of the prevailing contracts, and with the sole aim of rendering the company exclusively Italian, the government cannot fail to misunderstand the considerable results obtained under the present regime. Since the law of fusion virtually the totality of the network of the Roman Company has been completed; two lines, that of the Maremna from Leghorn to Civita Vecchia and the one from Florence to Foligno connecting with the lines from Ancona to Rome, have been completed and opened to operations. A few kilometers, the completion of which has been halted by political reasons, remain to be done in order to open a third communication with Rome from Florence by way of Sienna and Central Tuscany. The line from Rome to Ancona across the Apennines has been completed in excellent condition. The line from Rome to Naples has been entirely completed, and the program imposed by the law of fusion thus finds itself realized, insofar as it depends upon the company.

Today the network exploited by the Roman Company, which consists of 1676 kilometers, is in full operation and could not give rise to any justified complaint on the part of the government. It is true that enormous efforts have had to be made in order to obtain this result, and that in default of the bonds which would not sell, the company has had to accept the burden of a floating debt with its contractors and other creditors, which is the source of great embarrassment for it.

There exists but one point on which the Roman Company was behind schedule; that was the Ligurian line. But the difficulties of construction on that line, so important for relations with France, were in large part the fault of the government. A transaction between it and the company took place in order to settle these difficulties, and in taking upon itself the construction and raising the necessary funds, the state took away all pretext of attacking the company at the only point at which it might be vulnerable.

It is difficult, without knowledge of the present situation in Italy, to explain how a company which has maintained its engagements, which has established an immense network in the midst of the most difficult circumstances, and whose net revenues should exceed by at least

8,000,000 francs its fixed charges (not including, it is true, the floating debt), does not find in the government a solicitude and good will equal to that which it encounters even in its creditors. It is more difficult to understand how in an official document, emanating from the legislative power, one dares speak of bankruptcy, when bankruptcy could only result in the non-accomplishment of the company's duties to the state. When the state is debtor for an annual sum of 18,200,000 francs, it cannot expect to bring suit against the company for suspension of payments except for circumstances imputable to itself.

It is thus, that in using the misconstrued rights of third persons as an excuse for taking over the assets of the company, it would ruin the creditors whose interests it would appear to be protecting.

It is necessary that one knows well the meaning of the word "bankruptcy" in the circumstances which we have just recounted. It offers to certain parties the means of violating a firm engagement, to withhold sums which are owed to the company or to its participants for the services which it has rendered or which it renders daily by reason of existing treaties. It is a spoliation which is meditated and it is against this danger that it is urgent to guard.

V

The public interest in France raised by the question of Italian railways. Legitimacy of intervention by the French Government. It would be difficult to state the amount of the enormous sums which French capitalists have invested in Italian affairs. As for the enterprises of which we have just spoken, this sum can perhaps be estimated as follows:

(1)	For the Meridional Railway Company, about	210,000,000 fr.
(2)	For the Victor Emmanuel, about	145,000,000
(3)	For those of the Roman roads, about	350,000,000
	Total	705,000,000 fr.

in other words, more than *seven hundred millions.*[12]

This enormous sum has been furnished by more than 50,000 persons, among them some in very modest circumstances. The Roman Company alone counts in France more than 10,000 stockholders and 20,000 bondholders.

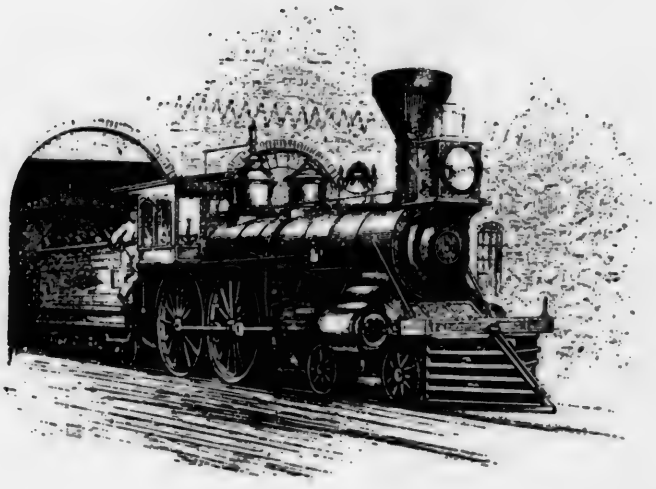
It must not be forgotten that among so many unhappy capitalists, there were some who were tied to the financial solidity of the former Kingdom of Piedmont, others who accorded their confidence to the Pontifical Government; these are victims of the territorial changes which Italy has undergone in these recent years. Other stockholders and creditors of Italian railways believed in the budding fortune of the new kingdom and if not in its gratitude, at least in its fidelity. They gave their money to the most useful works, to the internal prosperity of Italy shortly after the day when our glorious soldiers gave their blood on the field of battle at Solferino. By their nature and their origin these interests are worthy of the solicitude and high benevolence of the French government.

[12] To which should be added roughly 500 million of the more than 700 million invested in the Upper Italian Railway. At the end of 1881 Italy possessed approximately 9,000 kilometers of operating railways, the capital cost of which amounted to about 2.2 billion francs. Of this sum Frenchmen contributed more than 1.3 billion, or roughly 60 per cent, virtually all of it before 1868. For further details see Cameron, *France and the Economic Development of Europe.*

When it is a question, moreover, of protecting against violent attempts a considerable portion of the public fortune; when both law and equity are on the verge of being outrageously miscarried, the protection of the French government could not possibly be wrong in so just and so unhappy a cause. Lesser causes, to which so great a sympathy could not be attached, have they not frequently moved the heart of the Emperor?

In the present circumstances diplomatic intervention is justified from all points of view. It is legitimate because it is connected with political events of which Italy has been the theater, and which began under the shadow of our flag; it is legitimate, above all, because the respect for treaties and the conservation of the savings of the poor, when it is a question of such important sums so freely gathered on the French market and engaged in the conditions which we have just recalled, constitute a general and not a private interest.

What is necessary in order to prevent so many evils? That France make its voice heard, and in the interest of Italy itself halt the fatal and revolutionary movement which blind Power has loosened.



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THE AMERICAN MANUFACTURING FRONTIER, 1870-1940

A Comment

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Students of American history have contended with frontiers of population, agriculture, culture, science, and now one more must be added to the list — the manufacturing frontier. Severson's article in the Autumn 1960 issue of the *BHR*, "The American Manufacturing Frontier, 1870–1940," raises important points that deserve close attention. In this note I will comment on Severson's hypotheses, the quantitative measures used, his findings and general approach.

What Severson attempted to formalize was the following: between 1870 and 1940 the locus and concentration of manufacturing activity moved consistently South and westward with emphasis on the latter. This is the main hypothesis. But there are also two sub-hypotheses: (1) over the relevant time span, states classified as "Established manufacturers" in the eastern re-

gion lost ground first to some of the intermediary classifications and ultimately in the "Established" category to states further removed West; (2) the decline of "Established manufacturers" in terms of income and employment was taken up by increased activity of the service sector in these areas.

Severson actually only attempts to measure quantitatively the main hypothesis. He uses a twofold measure of the proportion of employment in manufacturing to total state labor force and the proportion of "product value" (agriculture, mining, and manufacturing) accounted for by manufacturing in each state. Taking 1954 as a year of normal distribution of manufacturing employment and "product value" accounted for by manufacturing, he sets a maximum limit to his measure and constructs a fourfold classification of what I should call the "degree of manufacturing activity." He finds two things: (1) in Census years since 1870 states farther and farther West consistently move up his scale of the "degree of manufacturing"; (2) states in the "Established manufacturer" classification in 1870 consistently lose ground (i.e., the share of employment in manufacturing to total state labor force and the share of "product value" accounted for by manufacturing declines significantly) to the newer regions. Sub-hypotheses (1) and (2) above are stated as conclusions but are not supported by any empirical evidence and *a priori* a test of the main hypothesis does not support conclusions about alternative or sub-hypotheses.

In respect to the quantitative measure employed by Severson at least three considerations are relevant: (1) does he mean by "product value" "value added"; (2) in what way do price changes affect his measure; and (3) what aggregate relative measures are alternatives to Severson's approach? My comments on (1) and (2) are as follows: if "product value" is merely the gross value of output, then fluctuations or trend changes in this magnitude represent either (a) absolute declines (or increases) in the quantity of goods sold; or (b) absolute price changes either upward or downward. This means that any change in Severson's "degree of manufacturing" depends on the particular operating rate of capacity in manufacturing and the general price level of manufactured, agricultural, and mining output.[1] Since his sample is so small — he has only eight observations — it is not likely that errors will be washed out. An alternative approach might utilize the rate of change in value added (difference between the cost of materials purchased and the value of final products) by manufacturing in constant dollars. Old areas may lose out to new ones but the rate of change in the former may indicate that the changes are insignificant particularly if the "size of the pie," (i.e., in this case, the share of manufacturing employment to total employment and the deflated contribution of value-added by manufacturing to total output) is also increasing at the same rate. Moreover, to pinpoint any interdistrict changes in manufacturing over time, alternative measures such as the ratio of employment to population and/or the ratio of state "gross product value" to total gross (or preferably

[1] Severson does attempt to correct for cycles, but the result is unsatisfactory. Actually, the correction amounts to an adjustment for comparative price changes in the output of manufacturing and agricultural activity. It does not include any adjustment of the different rates of operating capacity of plant or the degree of unemployment.

net) national product would have to be considered.[2] Severson's findings, for example, may merely represent spurious correlation: many other variables were also changing in the same direction as the Severson variables, the centroid of population and the locus of agricultural production, to mention only two.

The basis for the classifications developed by Severson also requires amplification. What is the precise meaning of "Established," "Equipped," "Settled," and "Frontier"? Do these classifications indicate: (1) the longevity or time dimension of manufacturing activity in particular regions; (2) the degree of capital intensity or labor-capital ratios; or (3) the different varieties of manufactured output? I am not convinced that the only thing which distinguishes a "Frontier" from an "Established" manufacturer is the difference in the proportion of the work force engaged in manufacturing activity and the aggregate dollar volume of manufactured output. This is not to deny that some manufacturing existed early in frontier settlements but surely there is a qualitative difference which cannot be ignored particularly when testing a proposition as general as Severson proposes. Indeed the Severson result is not surprising. Zellner and Murphy have shown how frontier areas developed sequentially and were virtually simultaneously fitted-in to the national economy. As Murphy and Zellner wrote: [3]

> **Thus over a space of many decades new areas were annexed to the older areas of the U.S. and many of them grew to rival the older areas in the complexity of their economic development. Three very broad features of the process as it developed in the United States illustrate this generalization: the temporal-spatial distribution of population, the urban distribution of population, and the relative regional importance of manufacturing activity.**

An indication of the importance qualitative differences in manufactured output might make in any comparison of manufacturing activity between regions can be seen from Table I, which illustrates the capital structure of manufacturing activity between 1879 and 1948. This table dramatizes the well-known fact that the structure of manufacturing in the United States, because of a variety of factors (notably technological change), has changed significantly in its aggregate capital requirements. The importance of the table in the present context, however, is that the Severson classification system, by ignoring relative capital endowments of various industries, masks the relative importance of different industries in any area to total manufacturing activity. In other words, newer regions may be increasing their "degree of manufacturing" (Severson's Table II), but such findings are tautological. Indeed the direction of the increase in

[2] Another alternative measure, but one more difficult to disaggregate, is the ratio of manufacturing employment to the total nonagricultural labor force. This ratio has tended, on balance, to decline slightly since 1910 and in 1956 was estimated at 31 per cent. This would seem to indicate an over-all reduction in the importance of manufacturing in nonagricultural employment. See Arthur Ross, "A New Industrial Feudalism," *American Economic Review*, vol. XLVII (Dec., 1958), p. 906.

[3] George G. S. Murphy and Arnold Zellner, "Sequential Growth, the Labor-Safety-Valve Doctrine and the Development of American Unionism," *Journal of Economic History*, vol. XIX (Sept., 1959), p. 408.

newer areas might be, and quite likely was, into such industries as agricultural processing, to support an enlarged population as indicated by the same 40 per cent of capital in manufacturing used in food and textile manufacturing in 1879. Or to put it another way: the distribution of capital resources as between industries and newer and older manufacturing regions reflects primarily an underlying change in investment opportunities. This would thus make it imperative that Severson's classification system (and his measure) be specific in meaning. Income and employment generated by manufacturing between 1870 and 1940 were bound to change regionally (Severson's use of states rather than a regrouping by economic or even Census regions is also subject to review) as new slabs of resources were added to the national economy. Moreover, as resources become substituted between regions, the structure of manufacturing would also change. The burden of the economic historian is to analyze and, if possible, explain the factors inducing this process.

Severson's comments on the service sector are also intriguing. Why does he exclude this sector in his original calculations? We may find, for example, that the proportion of income generated, or the proportion of the work force employed in the service sector in "Frontier" as well as "Established" regions was surprisingly high between 1870 and 1940. Severson's neglect of this sector in designing his measures might not have been crucial had he not included his two sub-hypotheses. Having included them, however, he is obliged to demonstrate that the importance of the service sector declines in a westward (or southward) direction or increases in an eastward direction. As a matter of fact, if increases in real income are closely related to the degree of industrialization, one should expect the service sector to increase over time in both the new and older manufacturing areas. The relative long-term stability in the national share of the service sector in income generated and employment would appear to strengthen this point. The percentage distribution of national income accounted for by the service sector in current prices, for example, showed a decadal average of some 45 per cent in 1868–1879 and approximately 40 per cent in 1939–1948.[4] It should be added, however, that employment in the service sector appears to be increasing in recent years.

The purpose of this note is not to challenge the validity of Severson's main hypothesis — namely that the locus of manufacturing activity has moved consistently westward.[5] Actually, this is an interesting proposisition and bears closer examination: excluding the more obvious factors such as population movements, resource endowments, and the like, by what process does regional "obsolescence" take place? Or does it take place at all, and, if not, does a strong interindustry substitution effect (e.g., services for manufacturing, changing capital intensities of manu-

[4] U.S. Dept. of Commerce, Bureau of the Census, *Historical Statistics of the U.S.: From Colonial Times to 1957* (Washington, 1960), p. 140.

[5] It would be interesting to test the main Severson hypothesis from 1940 to the present. It might be found, for example, that aside from certain basic industries, the locus and concentration of manufacturing activity have been reversed, as many of the older regions have experienced a rebirth of newer lines of manufacturing. The electronics industry in New England is a notable illustration. On the other hand, an equally plausible finding might be that since 1940 the concentration of manufacturing activity does not assume any definite pattern.

facturing) help explain the process? These are questions well worth devoting research resources.

The Severson approach, however, must be challenged. It is general knowledge that regional economic disparities are a characteristic feature of American economic development. But economic analysis of these differences must rely on conceptually solid ground. It is my feeling that Severson's approach falls far short of this standard; it is a manipulation of insufficiently general or relevant data. Moreover, the sub-hypotheses that support this approach have neither been tested by Severson nor incorporated into his conceptual apparatus.

TABLE I

Per Cent Distribution of Capital in Manufacturing, 1879–1948
(Book Value, 1929 Dollars)

Classification	1879	1948
Food and Kindred Products	18.6%	13.4%
Textiles and Textile Products	20.7	9.0
Leather Products	6.8	1.0
Rubber Products	.2	1.8
Forest Products	17.6	3.8
Paper and Pulp	1.8	3.2
Printing and Publishing	3.0	3.3
Chemicals	4.3	8.3
Petroleum Refining	.8	14.3
Stone, Clay and Glass	3.2	2.7
Iron and Steel	9.8	12.4
Non-Ferrous Metals	2.4	3.2
Machinery (Excl. Transp. Equip.)	8.6	13.3
Transportation Equipment	.4	7.2
Miscellaneous	1.8	3.1
Total	100.0%	100.0%

Source: Compiled from data in United States, Bureau of Census, *Historical Statistics of the U.S.: From Colonial Times to 1957*, p. 412.

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THE AMERICAN MANUFACTURING FRONTIER, 1870–1940

Reply to "A Comment"

ROBERT F. SEVERSON, JR.
Faculty Adviser
at University of Illinois

The purpose of the "Frontier" was to check the empirical veracity of an area of assumption made by economic historians. The study is a project in comparative statics. Concisely, it was an attempt to measure in aggregate terms the importance of manufacturing in the states and territories of the United States to determine whether or not the general knowledge of economic historians is borne out by the data compiled for

the periods examined. This was the *raison d'etre* of the paper and it accomplished this end.

Because of the very nature of the material available, and because of the pilot study approach to the problem, it was necessary to introduce arbitrary decisions and definitions to make the data comprehensible. The author did not set out with the preconceived notion that industry moved consistently westward and southward. This would hardly be a scientific approach. Nor did he state that this movement was consistent.

The arbitrary judgments began with a definition of the *importance of manufacturing*. It was decided to take the humanist's approach and determine this importance on the basis of income and goods provided by the economic apparatus of the areas examined, in the time periods examined. This had to be reconciled to the data available and many problems arose at this point. The gross product of each state would have been ideal, but since this was not available, the next best thing was the computation of a measure of output based on the main components of American production for the periods examined. This, of course, led to the use of agricultural, mining, and manufacturing output and the expression of manufacturing output as a percentage of that total. In measuring the relative importance of employment, the data were provided in the desired form. We have, then, figures showing the relative importance of labor employment in manufacturing (the income aspect) as well as the relative importance of output from manufacturing (the goods aspect) in the aggregate, for each state.

The next arbitrary decision was the choice of a base year to help determine a scale of importance. This is where the data for the national economy for the year 1954 were chosen as representative of the highest level of manufacturing that could have been possible in the historical situation examined.

This system provides a framework upon which to judge the relative importance of manufacturing in the various states with a comparative statics approach. When employed over a time span, such an approach will indicate the changing importance of manufacturing as a provider of income and goods in each area to which it is applied. In effect then, it reveals the westward movement we have been assuming.

Mr. Andreano asks why the service industries were not included in the computations. The answer is simply because data were not available under that heading for all the periods examined. The remarks to which Mr. Andreano takes exception were offered as a possible explanation for the decreasing relative importance of manufacturing in the eastern states. But this does not detract from the hypothesis or measuring method in the least.

Dividing a working economy into major economic industry sectors, we can come up with basic divisions such as "Extractive," "Manufacturing," and "Service." These divisions are basic, by definition, and all human pursuits must fall into one of them. These sectors deal in goods taken from the earth, goods put together, and intangible emoluments received by the purchaser (services of entertainers, repair men, etc.). All of these consumables are provided in an economy. In this frame of reference, the author's opinion that the service industry is taking over where manu-

facturing is leaving is not outlandish, as has been implied. Nor is this an unreasonable frame of reference, for the Census data provided were given as complete compilations of agricultural production, of manufacturing production, of mining production, etc.

One area of great misunderstanding is Mr. Andreano's impression that we are dealing with a sample and that the data are therefore liable to all the sampling difficulties of statistics. But this is not true. We are dealing with the population of a universe, a comparative statics approach to the problem. The number of observations is sufficient so long as one speaks in terms of where we began and where we ended. But there is no reason to apply statistical significance testing to the results of a compilation of data arising from the population of a universe. The figures collected in such compilation are not in the realm of probability, they are fact. You may discuss errors in method of collecting facts, and you may discuss what these facts actually indicate in different types of presentation, but they remain the facts of the population of a universe and therefore they are not fair game for statistical probability argumentation.

The titles ascribed to the various degrees of manufacturing importance can be changed, reversed, or simply designated as Grades A, B, C, and D. There was no reason to assume that the label attached to this gradation had any purpose other than rhetorical; the titles merely enable a reader to visualize better the differences of an ordinal degree.

Technological change has taken place, but let's keep first things first. In a market economy, the prices paid and received are at the very heart of the allocative process. If there is a high price in a specific area, it indicates a higher degree of scarcity than in another area and calls forth a realignment of the allocation of resources. When this happens and is recorded, it appears as what some would call a mal-allocation of resources. But in a market pricing system, it is tacitly agreed that "mal-allocation" is correct because it provides the list of goods consumers want in the places they want them. The changing structure of manufacturing is an afterthought of the economy's specific entrepreneurs, attempting to improve their cost/price position. Granted, the eastern factory was probably more efficient technologically than was the frontier firm, but the eastern firm was unable to provide goods and income on the frontier. If this were not true, the frontier manufacturer would never have existed. But he did exist and the value of his production is reflected in the price the frontiersmen were willing to pay him. If they paid him more than the price charged in the East, this was owing to the allocating mechanism of the market pricing system, and the existence or non-existence of technology had nothing to do with the problem from the static market pricing system's point of view. Capital is important, but it is important only if it is in the right place, at the right time, and capable of producing the right list of goods. The use of capital does affect price, but not until after the market has provided sufficient incentive to the owners and users of capital.

The use of a sub-regional approach in historical surveys of this type is impractical. The data available were given by state, a rather large area to be sure. The only other feasible division would have been the county — data were broken down to this level. But use of the county

as the geographical division for such a study would lead to compounding errors in analysis. For example, when Minnesota first laid out its counties, the area now outlined by Beltrami, Clearwater, and Polk counties, was all referred to as Polk County. The use of the county division, in this case, would have made close definition of geographical areas over time virtually impossible. The state was the only practical division to be examined under the purpose of this study.

The measurement of all values was in terms of gross product value. But this does not harm the results at all, because no comparison was made between agriculture and mining and manufacturing as such. Instead, comparisons were made of manufacturing in different states across time periods, and no more than that. Since values in the totals are expressed in the same terms for each state across time, and since manufacturing is compared to manufacturing rather than agriculture, or mining, the expression of manufacturing as a percentile of total production gives the changing relative worth of manufacturing in each state across time. Any question based on a discussion of the shortcomings of specific measures of value therefore becomes little more than a pedantic exercise outside the realm of this paper.

As concerns the main body of criticism put forth by Mr. Andreano, the following comments are in order. He states the hypothesis correctly except for the addition of the word "consistently." Removing this word (largely because of cyclical fluctuations and their effect on the relative activity in the areas of agriculture, mining, and manufacturing),[1] we find that there is no complaint with the hypothesis nor the interpretation of the results, given the measure utilized.

Unfortunately, Mr. Andreano has misrepresented or misunderstood the aggregate concepts employed and their implications. In his criticism labeled sub-hypothesis (1) he feels that there was an implied decrease of manufacturing activity in the East which was owing to the increase of manufacturing activity in the West. This was not the author's position. The total level of activity was obviously rising throughout the nation (see population statistics, for one example), and the rate of growth in the West was much higher than in the East. This rate of growth effect is analogous to current comparisons between the Russian and American economies, and arguing on this tack leads to folly. It is as though I were to say that by 1970 my son will weigh more than a ton because he is growing half again in total weight annually.

Finally, under what Mr. Andreano calls sub-hypothesis (2) there is need for discussion. By unintended inference, the article ends by giving the impression that it had proved that the service industry had taken over in the East where manufacturing had declined. This was not proved, nor was it considered as a part of the problem. It was merely the expression of an opinion based on the simple deduction used when dividing an economy into extractive, manufacturing, and service sectors.

Granted "it is general knowledge"[2] that there was a frontier movement. But one of the jobs of the scholar is to verify general knowledge,

[1] Here again Mr. Andreano's criticism is based on an assumption of statistical correction. My remarks on cycles do not indicate an attempt to correct a sample – they are my explanation of why manufacturing activity declined in some areas at some times.

[2] See the last paragraph of Mr. Andreano's comment.

to see if theoretical impression is backed by empirical observation. This is the scientific method. The comparative statics approach taken in this study is sound and has verified general knowledge. The hypothesis was borne out, and the sub-hypotheses ascribed to the study by Mr. Andreano have not affected the proposition as presented.

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¶ Presentation of the 1960 awards was made by Charles Penrose, Jr., Senior Vice-President for North America, at The Newcomen Society Dinner on January 19, 1961, at the Franklin Institute in Philadelphia.

Edith T. Penrose

LECTURER AND RESEARCH ASSOCIATE
AT THE JOHNS HOPKINS UNIVERSITY

The Growth of the Firm

A Case Study:
The Hercules Powder Company

¶ Growth is governed by a creative and dynamic interaction between a firm's productive resources and its market opportunities. Available resources limit expansion; unused resources (including technological and entrepreneurial) stimulate and largely determine the direction of expansion. While product demand may exert a predominant short-term influence, over the long term any distinction between "supply" and "demand" determinants of growth becomes arbitrary.

SPRING 1960

D. T. Gilchrist

LINCOLN EDUCATIONAL FOUNDATION FELLOW
AT THE JOHNS HOPKINS UNIVERSITY

Albert Fink and the Pooling System

¶ In the energetic attempt to control destructive competition through pooling, Albert Fink occupied a position of prominence analogous to that enjoyed by Morgan in the consolidation movement that was to follow. Fink's rational advocacy did much to dispel the notion that the railroads were exercising irresponsible censorship over the affairs of the business community. His rate-making ideas and techniques were a lasting contribution to scientific railroad management.

SPRING 1960

BOOK REVIEWS

COMMERCIAL CRISIS AND CHANGE IN ENGLAND, 1600–1642. ***By B. E. Supple. Cambridge, England, Cambridge University Press, 1959. Pp. xii + 296. $7.50.***

Reviewed by Herbert Heaton
Minneapolis, Minnesota

This book rings a loud bell to awaken memories of long ago. Its subject caught my eye, or rather hit me in the eye, when 50 years ago come next fall I waded through the seventeenth-century manuscripts in the British Museum and Record Office in search of materials on the English woolen industry. Time after time I encountered complaints about the "stande," "decay," or "lacke" of trade, the dead markets and jobless workers. My first impression was that the textile *bloc*, like the farm *bloc* of later centuries, was always grumbling. When, however, I arranged my notes in chronological order, the lamentations revealed a pattern of periodicity with a roughly ten-year cycle. This discovery suggested that perhaps the business cycle story, even with a Stanley Jevons rhythm, could be pushed back to 1600 or earlier. Regretfully I thrust aside the temptation to follow this trail through centuries which were then the Dark Ages of English Economic Historiography, but registered the hope that others would soon come along to dispel the darkness.

They have indeed done so since then, especially since the end of World War II. Pre-dawn still envelops the second half of the seventeenth century, so that it is still hazardous walking from the end of Professor Supple's book to the first pages of Professor T. S. Ashton's *Economic Fluctuations in England, 1700–1800* (1959). But for the four decades — or even the ten decades — preceding the English Civil War, the literature is becoming abundant, thanks to the work of such older scholars as Tawney, Nef, Fisher, and Wilson, as well as of the younger men whose appearance in the last decade is a veritable "population explosion" in our guild.

Professor Supple has admittedly leaned heavily on this "established body of secondary literature"; has gone beyond and behind it to examine for himself the original sources; and has emerged with a volume rich in description, analysis, reinterpretation, and a bit of provocation. His central theme is crisis and change as revealed in the weal and woe of England's staple export, woolen cloth. That commodity accounted in

1600 was certainly over 75 per cent of the country's exports, and the traffic in it was described in the Madison Avenue jargon of the day as "the axis of the Commonwealth, the flower of the king's crown, the dowry of the kingdom . . . the gold of our Ophir, the milk and honey of our Canaan, the Indies of England" (p. 6). But as Professor Fisher revealed statistically 20 years ago, the gold, milk, honey, and dowry did not flow in a steady stream. During the sixteenth century, cloth exports from London rose 150 per cent in the first half, then fell 25 per cent in the third quarter, and fluctuated during the fourth at about 20 per cent below the mid-century peak. The trade suffered at least six depressions in the hundred years, two of them "catastrophic slumps" in which exports were halved.

The export statistics and the complaints of unemployment indicate that conditions were no better during the next 40 years; the economy remained "highly vulnerable to dislocation" (p. 19). After a compact "Introduction" to set the stage and outline the plot, Supple devotes "Part I. Years of Crisis," comprising two fifths of the text, to a detailed almost year-by-year and blow-by-blow report of the ups and downs of those four decades. First came a period (1603–1614) of recovery from stagnation, of expansion and prosperity. Then came Alderman Cockayne's notorious project (1614–1617) for dressing and dyeing all cloths before export, which Supple insists conclusively was really an attempt "by seventeenth-century racketeers to gain, by conspiracy and misrepresentation, a share in [the] profitable monopolistic trade" (p. 21) of the Merchant Adventurers. It succeeded in only one respect: it reduced cloth exports to Germany and the Low Countries by more than one third before it collapsed, and the restored Merchant Adventurers had recovered only a bit of the lost ground when the "Great Depression" of 1620–1623 descended on western Europe. Recovery therefrom was slow and partial, and, during the rest of the period, trade fluctuated at a level far below the boom of 1614, with slumps in 1625, 1629, 1630–1631, 1636–1637, and 1640–1642.

In examining the short-term causes of this recurrent *malaise*, Supple rules out any resemblance to "the modern trade cycle" (with its "marked *rhythmical* character") of the nineteenth century, since he regards the latter being "associated with the growth of capital goods industries and the factory system" (p. 9). He might also have added the nineteenth century's relative freedom from war and from the hand-to-mouth fiscal devices of governments. The virtual lack of these two freedoms in Stuart England, as in western Europe, is evident throughout the book. Certainly the "pre-factory economy" rarely, or never, got a chance to show whether it could produce "regular and self-generating oscillations of economic activity" (p. 10). Supple contends that, apart from variations in purchasing power resulting from harvest fluctuations — which he seems to play down rather than rate high in effect — the home market for cloth tended to be stable at a low level, and that "it was, therefore, frequently overseas demand which was the strategic determinant of alterations in internal activity" (p. 9). I would have said "overseas demand and the ability to supply it." Peace benefited both, especially in the years 1604–1614. The Thirty Years' War cut down the demand from Germany and adjacent

regions after 1618, and provoked currency manipulations there which priced English wares out of the market. War with France and Spain in the late 1620's ruined the market in those countries and made traffic in the Mediterranean unsafe. On the other hand, ability to supply goods to meet foreign demand slumped temporarily in 1603 and 1625 when long severe bouts of plague paralyzed London, the bottleneck of the cloth trade; also, more seriously, when the Cockayne gang proved lacking in the skill, know-how, connections, and capital needed to displace the Merchant Adventurers and fell down on its job; and yet again, though briefly, when many merchants joined in the constitutional tussle with the crown, refused to pay unauthorized customs levies in 1628–1629, and were therefore unable to export cloths.

Having traced the dreary chronicle of short-term fluctuations, Supple devotes his final four chapters to longer-term trends and changes in the economy, in monetary conditions, in the impact of crisis on economic thought, and in the government's economic policy. His survey of changes in the economy (Chapter 7) follows closely that made by Professor Fisher a decade ago: the decline of the traffic in the "old draperies," those thick hard-wearing fabrics suitable for the cool or cold climate of northern Europe; the emergence of the "new draperies" — worsteds, we call them today — made of long-staple combed wool yarn which was so strong that it could be woven into light-weight attractively colored fabrics adapted to changes in fashion and wearable in the warm climate of southern Europe; a rapidly expanding export, when peace permitted, of these cloths to the Mediterranean as far east as the Levant, and a consequent vigorous invasion of the trade and shipping of that region, carrying fish and cloth and returning with silk, cotton, fruit, and the like for use in England or re-export to northern Europe; the serious beginning of imports from the outer continents, with re-export to continental Europe providing profits from the trade and the shipping services. Thus England's dependence on one staple product and one trade area began to wane as new products, new trade horizons, and new forms of enterprise came within reach.

Chapter 8, on "Monetary Instability, 1600–1642," tackles successfully the awesome task of analyzing the almost perennial complaints of a "scarcity of money" in a bimetallic economy bedevilled normally by international disparity of mint ratios and market ratios, and subject during slumps to an adverse balance of trade. In 1611 the London mint ratio was changed, in order to check gold exports. The new ratio turned the tables by making it profitable to export silver and come back with gold, thereby reducing the supply of silver coins to low ebb and lower quality. Yet all suggestions that the ratio be changed once more to bring back the silver were rejected as inflationary and bound to provoke retaliatory action abroad. Apart from direct attempts to limit or ban precious metal exports, all of them wrong-headed and futile, England grinned and bore the situation until it was eased when France and Holland altered their ratios in the 1630's. This steady drain became aggravated and bimetallic during the Great Depression of 1620–1623 by an unfavorable balance of trade which turned the exchange rates against London and pushed them below specie export point. Even then, clamor for drastic

action "led to no changes in a relatively quiescent policy" (p. 194).

The Great Depression provoked some most painstaking deliberation on the vagaries of short-term crises, as revealed in the famous pamphlets of Malynes, Misselden, Mun, and others. In re-examining the ideas of these men in Chapter 9, Supple appraises them "in the light of the frequently forgotten fact that they were the products, not of deductive reasoning, but of the impact on men's minds of economic problems which urgently demanded analysis and remedy" (p. 198). The immediate pressing question of that slump, as of others, was not "How can we build up a Fort Knox of bullion?", but rather, "Why is England losing treasure and how can it be regained?"

In a final chapter on "The Government and the Economy," Supple joins the sceptics who have questioned the highfalutin conceptualizing of "Mercantilism." "'Mercantilist' doctrine was not the spontaneous product of an ideal of society nor is it evidence of the momentum of medieval concepts. Instead, officials in the early seventeenth century had in mind quite unexceptionable ends whose simplicity contrasts sharply with those so often attributed to 'mercantilism'" (p. 226). Those ends in Tudor and Stuart (or at least early Stuart) England were the maintenance of social order, public peace, national security, and the achievement of economic prosperity. Some policies were strategic in purpose; some had a fiscal motive, even when they seemed to be industrial or commercial; others sought to preserve order or maintain the social fabric. The latter were "attuned most exactly to *downswings* in economic activity," and apart from the Cockayne project they were virtually all "stimulated by the urgent demands of a period of short-term (if recurrent) dislocation" (p. 228). The chief measures aimed at alleviating the worst effects of depression, especially the unemployment and famine which would otherwise provoke bread riots or worse. Merchants and clothiers were urged or bullied to continue buying cloth which they had little hope of selling. The Poor Law was used to "make work" — cloth rather than leaf-raking — as well as provide food; wage-cuts might be checked; the grain markets were regulated more strongly; and so on. These efforts, often sincere and dogged, were limited in achievement by inadequate local administration and financial stringency; yet they did serve "as a peripheral defence for some communities during the starvation-ridden horrors of a seventeenth-century slump" (p. 252).

Beyond them there was rarely "any attempt to propound policies primarily designed to get to the roots of potential dislocation" (p. 233). Even if "New Deals" which went beyond relief to reform and recovery had been envisaged, the ability to formulate them would have been far beyond the administrative capacity to enforce them or to pay the price. Hence "the dynamic elements in economic development were moulded by market forces" and the period saw no government-planned "revolution in the institutional framework within which economic fluctuations and developments took place" (p. 252). Perhaps this was a mighty good thing for England in view of the character of the Stuart court, with its impecunious parasites, its greedy hangers-on, its extreme financial needs, its anxiety for new sources of income and new possibilities of corruption (p. 227).

In all, Professor Supple has given us a first-rate first book. It brings us up to date on the results of recent research by himself and his fellow experts in the period. One of the latter (Robert Ashton) has described the volume as a "masterpiece . . . which will come to rank as one of the classics of the economic history of its period" (*Economic History Review* [August, 1960], p. 119). If I feel a tiny doubt about this forecast, it springs from the division of the book into three parts: the first a detailed chronological story, the second and third a quartet of surveys of different facets of the period. This has led to overmuch repetition, trepetition, even polypetition in the text and a rash of cross-references to "Below" or "Above" — 33 of the latter in the final chapter alone. Perhaps this was unavoidable, but it is rather tiresome to the reader with a passably good memory.

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MASSACHUSETTS SHIPPING, 1697–1714: A STATISTICAL STUDY. ***By Bernard Bailyn and Lotte Bailyn. Cambridge, The Belknap Press of Harvard University Press, 1959. Pp. xi + 148. $5.00.***

Reviewed by Lawrence H. Leder
Brandeis University

On occasion a monograph appears which offers either a marked departure in technique or a new source of information about an important area or period of history. This brief volume manages to do both successfully. Taking a body of conventional data generally available to those working in the period, the Bailyns have judiciously applied modern technology and come up with new and detailed conclusions about an aspect of economic development which was hitherto discussed only in broad, general terms.

The Massachusetts shipping register for 1698–1714 has long provided researchers with an embarrassingly rich mass of data about a leading economic activity of the Bay Colony. Previous historians, using conventional research methods, have been unable to comprehend or develop fully the meaning of the detail available in this manuscript. They have used it effectively in tracing the activities of individual shipowners or particular ports, but the cumbersome physical problem of handling the material has thwarted any attempt to analyze the concentration of shipping, patterns of investment, distribution of ownership, or changes in the composition of the fleet.

However, the physical problems have now been overcome by the cautious use of the IBM methods. The 1,696 vessel entries in the register, together with information on tonnage, place of construction, home port, and ownership, were transferred to cards, although not without some problems. It was simple enough to digest quantitative data, but qualitative materials, such as the names of people and places, vessel types, and owners' ocupations, were more difficult and required the creation of complex numbering systems. Educated guesses occasionally had to be substituted for information not given in the register, such as the size of owners' shares. Moreover, the fallibility of the machine had to be kept in mind; the bending of a hair on a wire-sorting brush resulted in

missorting nearly 5,000 cards and produced a "handsome but fantastic table." All of these difficulties are lucidly discussed in the introduction and in "A Note on Procedure" appended to the text.

Twenty-seven tables and eight brief chapters summarize the findings of the authors. Since the year of the original registration, ending December 25, 1698, was the only one for which a true cross-section of the shipping fleet could be obtained, the authors used this as a base, analyzing the fleet's size, the ship construction industry, ownership, and patterns of investment. No mention is made in the register of the eventual disposition of ships as new ones are acquired by construction, purchase, or capture, and thus no over-all view of the fleet can be made for later years. However, alterations of the original pattern can be discerned in the acquisition, ownership, and distribution of vessels.

In 1698, Massachusetts' ships were larger on the average than those of any other New England area, but those of the British Isles were 2½ times larger than those of the Bay Colony. The Boston Bay area was the center of the colony's shipping, registering 76.9 per cent of the colony's vessels, 80.1 per cent of the tonnage, and the largest individual ships. The total tonnage for Massachusetts was matched within the Empire only by that of Bristol and exceeded only by that of London. Clearly, the Bay Colony was "one of the major maritime centers of the Atlantic world." Most of this fleet was of New England manufacture, with the nearby coastal towns supplying a surprisingly large percentage of the Boston vessels. "Ownership," the Bailyns conclude, "was neither so widely distributed as to constitute an economic democracy . . . nor so concentrated as to suggest a ship-owning oligarchy."

In the years following 1698, several tendencies toward concentration were evident. The control of overseas shipping increasingly fell into Boston's hands while the role of the other towns declined. In addition, the size of vessels registered in Boston tended to increase, and Boston came to rely heavily upon the "ship" rather than the smaller sloops which were utilized by the outports. In terms of ownership, an element of stability entered the picture as individual owners became more prevalent and as partnerships were created which lasted longer and invested more widely than in a single vessel. However, the range of participation in shipowning "extended not merely down into the middle and lower regions of colonial society, but abroad, into England and its commercial enclaves throughout the Atlantic world."

In presenting their conclusions about this maturing economy, the Bailyns have illuminated an important area of activity about which previous authors have been either vague or silent. Their application of IBM techniques to historical research in colonial economic development is worthy of emulation; however, anyone following in their footsteps must heed their warnings about the limitations of the technique. An IBM machine is not necessarily the panacea for all problems, because its results are no more valid than the criteria established for processing data.

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STUDIES IN THE INDUSTRIAL REVOLUTION: ESSAYS PRESENTED TO T. S. ASHTON. ***Edited by L. S. Pressnell. London, The Athlone Press of the University of London, 1960. Pp. 350. 42s.***

Reviewed by John L. Enos [1]
Massachusetts Institute of Technology

Dr. Watson, complimenting Sherlock Holmes for a particularly astute analysis once said, "When I hear you give your reasons . . . , the thing always appears to me to be so ridiculously simple that I could easily do it myself, though at each successive instance of your reasoning I am baffled, until you explain your process."

I feel the same admiration for those scholars who reconstruct history. With only legislative and judicial records, customs receipts, patents, commercial ledgers, baptismal and death certificates, and other documentary impedimenta as clues, they create what the participants failed to leave, a record of some of the events of an age. Their methods and their perseverance are well displayed in this *festschrift* of 12 essays in honor of the seventieth birthday of T. S. Ashton, Emeritus Professor of Economic History, at the University of London.[2]

The essays focus on those portions of the Industrial Revolution in Britain that Professor Ashton himself illuminated, with such success that they seem quite ordinary now. There is one essay each on agriculture ("The Course of Agricultural Change 1660–1760," by A. H. John), handicrafts ("Clothiers and Weavers in Wiltshire during the Eighteenth Century," by J. DeL. Mann), iron ("Isaac Wilkinson, Potfounder," by W. H. Chaloner), banking ("London Bankers in Wartime 1739–84," by D. M. Joslin), money markets ("The Rate of Interest in the Eighteenth Century," by L. S. Pressnell), population ("Population Change in a Provincial Town: Nottingham 1700–1800," by J. D. Chambers), international trade ("Atlantic Economy, 1815–60: the U.S.A. and the Industrial Revolution in Britain," by J. Potter), and four on what might best be classed business organization and management ("The Sub-contract System in the British Coal Industry," by A. J. Taylor, "The Beginnings of the Canal Age in the British Isles," by T. C. Barker, "A Yorkshire Mechanic Abroad," by H. Heaton, and "The Impact of the British Industrial Revolution on the Swedish Iron Industry," by E. F. Soderlund). Finally, there are two appendices, one chronological ("The Return to Gold, 1925," by R. S. Sayers), and the other bibliographical (a list of Professor Ashton's academic writings).

To the specialist in the history of the Industrial Revolution, certain of the essays will have particular interest. Since the titles are quite descriptive of the contents,[2] I am content merely to list them and, by so doing, provoke a curiosity for proper reading.

To the student of business history, the collection as a whole may be more valuable for what it reveals about the practice of business in an industrializing society. With the license allowed a reviewer, I shall

[1] I wish to thank Professor W. L. Letwin for his helpful comments.

[2] The subject of which events they chose to recreate I shall turn to later.

[3] There is one exception to this statement. Potter's essay on the Atlantic economy is concerned not with all forms of economic activity – the production, exchange, and consumption of goods and services, and the movement and employment of labor, capital, and knowledge – but only with international trade in goods.

generalize from the individual events which the authors have portrayed.

The practice of business can be thought of as accomplishing two functions, the acquisition of resources (labor, management, capital, ideas, and markets) and their combination in the acts of production and sale. What can one infer from the *Studies* as to the manner and skill with which these two functions were carried out in the latter part of the eighteenth and the early part of the nineteenth centuries?

The acquisition of labor (individuals who perform repetitive tasks under supervision) does not seem to have caused the eighteenth-century businessman much concern.[4] From Taylor's, Heaton's and Chaloner's essays, one gathers that unskilled, and even skilled, laborers were readily available at relatively low wages and under conditions of employment that give evidence of their docility. Rebelliousness seems to have been the expression of those who were not employed in industry (the hand weavers of Southwest England) rather than those who were. Industrial labor was drawn initially from the agricultural sector, but later the urban proletariat was able to generate the additional supply. Chamber's study of the population of Nottingham illustrates this shift in source: from 1700 to 1750, when the town grew from 7,000 to 12,000, it suffered a reduction of 600 in the indigenous population; the net increase came about only through immigration, presumably from the surrounding countryside. But in 1750, in a demographic sense, Nottingham became self-sufficient. In the next half century, from 1750 to 1801, it grew by nearly 18,000 more, 40 per cent of which was provided by natural increase. One wonders why the change took place: is there something significant about the date (1750), or the size at which the town became self-sustaining (12,000), or its popularity among the wealthy (resulting in a ducal residence, town mansions, and the races), or the development of industry (throughout the eighteenth century, textile manufacture was the dominant activity, but it was only during the period 1755–1775 that the major innovations in spinning and weaving increased substantially the productivity of the workers)?

Whereas labor seems to have been plentiful, management was not. There is evidence (in Heaton's and Taylor's essays) it was in short supply. The educated did not have the inclination, and those inclined to management did not have the education. But there is also evidence (in Heaton's and Chaloner's essays) that small as was the supply, demand was even smaller. When employed, a manager could not count on a very high wage. John Barraclough, a textile factory manager whose peregrinations Heaton describes, was paid about six francs a day by his French employer at a time (1850) when the average wages for Frenchmen were two francs a day.[5] The differential was not substantial enough to keep his own children out of the mills. In addition, managers were seldom allowed to utilize their talents to the full, for their employers, the business owners, were loathe to share information or authority. This reserve on the part of employers may not have been wholly selfish, however, as most of the managers aspired to becoming owners themselves.

[4] This is only an hypothesis, albeit a useful one. To paraphrase Tolstoy, history is easier to understand if one assumes people to be obedient.

[5] A. H. Dunham, *The Industrial Revolution in France 1815–1848* (New York, 1955), pp. 194, 195.

In those operations where work force is large and tasks specialized, the mining of coal for example, supervision is necessary. Supervision need not necessarily be carried out by the operator, provided that his and the supervisor's goals are compatible. Under subcontracting, a harmonious separation of ownership and supervision can generally be achieved. Since salaried managers were not readily available in England in the eighteenth and nineteenth centuries, and since owners did not wish to grub about in their operations, there was considerable recourse to subcontracting. In extracting the maximum amount of work from labor, subcontracting was probably quite profitable for the firms and productive for the economy. But it was not popular with workers. Their antipathy, together with a divergence of goals between subcontractors (still maximizing over the short run) and owners (with legal responsibility for accidents and greater capital investment now focusing on the long run), led in the latter half of the nineteenth century to decline of the system.

If the acquisition of labor was easy and of managers more difficult, what of capital? This question is almost impossible to answer at the present state of knowledge. Of the two possible sources of capital, retained earnings and the capital markets, the former is generally an unknown quantity. Was the proportion of total investment financed by profits equal to about 60 per cent, as it is today, or was it different? If it were higher, as I suspect it was, then substantial profits were needed to generate growth. If the proportions were less (as was the case of British overseas investment in the United States and Argentina later in the nineteenth century), expectation of future profits would have been enough to generate growth.

Not only does one learn little about the extent of internal financing, but also only half the amount one needs to know about external financing. Two of the essays (Joslin's and Pressnell's) report the price at which outside capital was available (i.e., the interest rate), but one (Pressnell's) does not consider volumes of transactions, while the other (Joslin's) reports over-all volumes without distinguishing between uses: in the eighteenth century apparently loans were not divided into such categories as commercial, industrial, agricultural, and personal.* The most revealing essay on the sources of capital (Barker's) indicates that, for canals at least, capital could be obtained from public authorities and from manufacturers whose own costs would be reduced. For the former, investment was a means of utilizing local resources, for the latter a means of achieving vertical integration.

If one can learn little about the acquisition of capital, one can learn even less about the acquisition of ideas and markets. Ideas seemed to have circulated not independently but in combination with labor or management. The concept of knowledge disassociated from its source, existing today in all areas except the arts, had not gained currency. If a businessman wanted to learn about a new technique, he hired someone who was familiar with it. This restricted the market considerably,

* Incidentally from the few statistics Joslin quotes one gets an impression of a great growth in size of banks: the terminal figures on total deposits for the two banks he studied are £43,000 (Sept., 1745) and £484,000 (Dec., 1779) for Gosling's, and £460,000 (June, 1740) and £726,000 (1784) for Hoare's.

for both the technician and his ideas had to be acceptable to his new employer, and his departure permitted by his old.

This much one learns about the acquisition of ideas; about the acquisition of markets one finds nothing in the essays. During the Industrial Revolution, production increased greatly and goods began to move in considerable volume in local and international trade. Presumably the goods were sold and consumed, but one does not know how the markets were acquired, or in most cases, what the market institutions were. To whom did all of the colliery owners, the textile manufacturers, the iron founders, and the farmers sell their products? Imagining myself an eighteenth-century manufacturer, I can visualize what product I might produce, what techniques I might use, where and how I might get the resources necessary for production, but I cannot visualize at all how I might sell my product. To be sure, I might consider trade an undignified occupation, but I would still wish to know something about traders.

Is it possible that historically traders achieved large-scale operation before manufacturers? Since there were concentrations of population and since the range of products traded in was not very wide, one can imagine that large scale had already been achieved in the distribution of, say, wheat or calicoes. If one looks at the developing countries today one sees that the largest private firms are in trade, distributing such products as petroleum, soap, and soft drinks. It is thus conceivable that the same phenomenon existed in eighteenth-century Britain; certainly such evidence as one finds in the relative preponderance in total borrowings by merchants would lead one to believe that it was in trade that the greatest aggregations of resources occurred.

Apart from greater ignorance (and this may not have been ignorance at the time) in what ways was the business environment of the eighteenth century similar to, and in what ways did it differ from that of the twentieth? The main difference is that technological knowledge was much harder to acquire. It was not until the beginning of the nineteenth century that widespread dissemination began: then, in the coal industry, schools were established for the education of mining engineers; and in textile machinery, with domestic demands satisfied, manufacturers began to demonstrate their products abroad.

Other major differences between business then and business now are not apparent from the essays. Rather one observes similarities. First of all, high- and low-cost firms coexisted. The high-cost firms (e.g., the Swedish iron manufacturers) were usually technologically backward, and remained in business only through government assistance or the inability of certain customers, primarily those in the underdeveloped countries, to utilize more highly refined products. Then, as now, the unskilled manufacturer could not exploit the cheapest factors of production.

One also notices similarity in the function of interest rates. There was little apparent relation between the interest rate and the return on capital, and the interest rate did not seem to perform the job of allocating scarce capital to competing ends. In periods of shortage of capital (see Joslin's essay), bankers did not let the rate of interest rise to the point where the volume of funds desired by potential borrowers was equated to the volume of funds bankers were willing to lend; they reacted just as bankers

do today by raising the rate of interest ever so slightly and rationing credit.

The study of economic history is continually delving into new material. Moving from those things which are permanent or long-lived and therefore leave lasting traces (land, human beings and their ideas, and law), some adventuresome historians have progressed to those phenomena which are more transitory (prices, rents) or intangible (techniques). Topics which may be studied in the future, if today's lack of knowledge is any indication, will be production functions (the technical relationship between inputs and outputs), marketing, mobility of labor, and flow of funds.

I wonder if Professor Ashton would not have been more greatly honored if his admirers too had entered into some of these new areas instead of sticking to the more ordinary ones. Rather than frightening historians, the partially or completely unknown should stimulate them. To quote Sherlock Holmes one last time, "I have already explained to you that what is out of the common is usually a guide rather than a hindrance."

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ERASTUS CORNING: MERCHANT AND FINANCIER: 1794–1872. ***By Irene D. Neu. Ithaca, New York, Cornell University Press, 1960. Pp. xii + 212. $4.00.***

Reviewed by James F. Doster
University of Alabama

Professor Neu's brief, factual volume systematically catalogues the career of Albany, New York's Erastus Corning as a business entrepreneur. At the age of thirteen, Corning, a poor boy, went to work in the hardware and iron store of a benevolent uncle in Troy, New York. At fifteen, he was encouraged by his employer to take up some small mercantile ventures on the side, and by the time he was twenty he had saved $500 from his meager income. Then he went to Albany to work for another hardware and iron firm. In two years more he became a junior partner. Through shifting partnerships Corning prospered. Albany was well located to supply a growing western trade, and Corning and his associates did both a wholesale and a retail business. Obtaining control of a small iron works in Troy, Corning combined the production of iron products with the marketing of them through his mercantile firm. He maneuvered to become president of the Utica and Schenectady Railroad Company in 1833, and, as director and president of various railroads in the years which followed, he used his positions to secure a steady and expanding market for his iron products, including rails. He made large profits from the heavy and steady iron business of the Civil War.

Corning was active in politics as a member of the powerful Albany Regency. He supported Andrew Jackson and was a Democrat to the end of his life. He held various public offices over a long period and served several terms in Congress in the Civil War era. He speculated in lands on a large scale, both in New York State and in the West, as a member of various partnerships. Out of one of these ventures grew the town of Corning, New York. He was president of the Albany City Bank from

1834 to his death in 1872. A very interesting thing about Erastus Corning is the effective way in which the various phases of his career supported each other.

Corning's best-known activities were in the field of railroad consolidations, notably in the formation of the New York Central combination, of which he was president from 1853 to 1864. He profited greatly from railroad stock manipulations and used his influence to cause heavy purchases of iron by the railroads from his own firms at good prices. At the time of his death he had accumulated a fortune of some $8 million.

One of Corning's best abilities was that of being able to pick good associates and partners and to command their continuing loyalty. The reviewer notes that Corning's success in getting able and trustworthy partners to conduct routine management functions freed him for enterprise and promotion.

A few things need to be said by way of criticism of the book. The author greatly underemphasizes the fact that a strategic location in a phenomenally growing area made possible the success of Corning's enterprises. Corning appears as a shadowy, colorless figure, devoid of personality — a deficiency arising from the destruction of records, coupled with an unwillingness on the part of the author to create an imaginary character. The book covers so much ground in its few pages that it is necessarily sketchy, but as far as it goes, it is a valuable piece of work.

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A HISTORY OF THE MIDLAND COUNTIES LACE MANUFACTURERS' ASSOCIATION, 1915–1958. ***By D. E. Varley. Long Eaton, Published by Lace Productions (1948), Limited, on behalf of the British Leavers Lace Manufacturers' Association, 1959. Pp. 212. 25s.***

Reviewed by James H. Soltow
Michigan State University

As D. E. Varley comments, the growth of trade associations in Great Britain "has probably been one of the most significant structural developments in the present century." While some industries have achieved rationalization through combination into small numbers of giant firms, others have obtained considerable stability through forms of cooperation which maintain the existence of many small enterprises, particularly where the legal climate permits the association to enforce rules of competition. The efforts of the members of the small but not insignificant British lace industry to solve their problems through organization provide the subject of this detailed study.

The Midland Counties Lace Manufacturers' Association was organized in 1915 to meet competitive problems aggravated by the wartime rise of the price level, specifically the pressure of the lace finishers, to whom producers normally sold their output, "to make the manufacturer absorb the whole of the increased costs by insisting on delivery of goods at prices agreed several weeks or even months earlier." The first efforts of the new Association were directed to establishing minimum selling prices for the various types of lace, to which member firms voluntarily agreed to adhere. Although these schedules, based on average costs of

production at a level of output considerably below capacity, proved to be too sophisticated for successful application by management of the small firms in the industry, precise calculation of minimum prices was not vital in the boom period up to 1920. The loyalty of the members received little testing when the Association's suggested minimum prices were below actual selling prices. When boom markets collapsed in 1920, the lace manufacturers' "first instinct was not to press more firmly into the bosom of the parent Association but to seek their own salvation as independent units in a competitive market." Because little provision had been made to enforce the price schedule, cutthroat competition returned to the industry. From 1920 to 1926, over one half of the leavers lace manufacturers went into bankruptcy. The Association came close to death's door by 1927 — only five members attended the annual meeting in that year — and became largely dormant for the next decade. The industry was able to survive the Great Depression only because of the drastic reduction in capacity in the early 1920's and the imposition of a tariff to protect the home market against French competition.

The events of World War II revitalized the Association, as the government delegated to it responsibility for rationing the limited yarn supplies and for concentrating the contracted output of the industry into a few plants. Determined to avoid the mistakes of the first efforts at price-fixing during and after World War I, leaders of the Association decided to take advantage of the circumstances to formulate a long-range program to regulate competition. This, they concluded, could best be accomplished by a selling agency owned by members of the industry. Thus was born in 1943 Lace Productions, Ltd., in which every firm in the industry subscribed one share for each machine it owned. The author points to the new method of policing the trade as "ingenious in that it combined central control with individual responsibility and initiative." Each enterprise remaining in operation was responsible for securing orders for its own patterns but contracted to sell to Lace Productions at its production cost. The profits on each sale accrued to the central company. Long-term allegiance to the scheme was encouraged by the provision that any firm which withdrew would forfeit its claim to a share of the substantial reserves of Lace Productions.

With the termination of the wartime company, the Association helped to form a successor Lace Productions, Ltd., in 1948. The new company differed from the old principally in that it acted only as an invoicing and collection agent for member firms. Although price regulation has been the main purpose of Lace Productions, the joint stock company has provided other services for the industry, including support of technical research, credit rating of customers, and enforcement of uniform contract terms between manufacturers and finishers. The M.C.L.A., as a trade association distinct from Lace Productions, has undertaken responsibilities in other areas, principally industry-wide collective bargaining with trade unions and lobbying on behalf of its members' interests.

The history of the Midland Counties Lace Manufacturers' Association, re-christened in 1958 as the British Leavers Lace Manufacturers' Association, provides a British version of the "organizational revolution" in an industry which has continued to be characterized by small business.

Varley points to the main problem: "The optimum size of firm in the manufacturing stage is relatively small whilst that in the merchanting stage is large," primarily because of the enormous variety of design and quality in lace. Organization was necessary for the lace manufacturers to deal with the competitive problems which they encountered in an oligopsonistic market. Varley emphasizes the success of this cooperative enterprise in bringing stability to the industry, but he indicates that "the effectiveness of the scheme will be severely conditioned, if not entirely dissipated, by competition from the French leavers' industry, and the machine-embroidery and the warp and barmen lace industries of the United Kingdom, Switzerland, and Germany, by financial stresses, or by chronic excess capacity." Rather striking is the paradox of an industry dependent upon export markets demanding tariff protection, as did the lace manufacturers in the 1920's and 1930's. Indeed, the author argues that "the industry's ability to compete in foreign markets depended upon there being a stable and protected home market."

The author has focused his discussion rather narrowly on the lace industry, although he indicates that its problems "have much in common" with the quarter of a million small firms in the British economy. Yet, this is essentially a case study, not only of an industry's attempts to solve its common problems but also of the history of the lace industry in the nineteenth century. Four solidly packed chapters treat location factors, technology, industrial structure, and marketing as they evolved from 1768 until the formation of the Association in 1915. Although Varley has made little effort to relate developments in the lace industry to general trends in the British economy, he has perhaps demonstrated excessive modesty in his statement that he "anticipates that this volume will circulate very little outside the trade." In spite of this disclaimer by the author, the work should be of considerable interest to business historians, particularly those concerned with business associations, the problems of small business, and the role of government.

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CHARLES H. DOW AND THE DOW THEORY. ***By George W. Bishop, Jr. New York, Appleton-Century-Crofts, Inc., 1960. Pp. ix + 359. $6.00.***

Reviewed by Giulio Pontecorvo
Bowdoin College

Wall Street produces more statistics than any other institution in the business community, but the plethora of numbers is all too seldom the inspiration for economic analysis or the basis for meaningful historical interpretations of the institution and its role in our society. In this book, George Bishop has made a contribution to Wall Street history by investigating the beginnings of an extremely important aspect of Wall Street's activities: the gathering, reporting, and interpretation of financial news.

The first four chapters, which are relatively short, are devoted to Dow's life, especially his early years as a general news reporter and writer of special feature articles for New England newspapers. These chapters are narrative in style and do not give us very much in the way

of insight into Dow's character, activities, and motivation. The remainder of the book analyzes the Dow theory as it was outlined by Dow himself in editorials in the *Wall Street Journal* and, subsequently, by his two interpreters, William Peter Hamilton and Robert Rhea.

Dow's editorials and articles on finance cover the period from the founding of the *Journal* in 1889 to his death in 1902. However, while Dow was the editor throughout this period, definite authorship by him of specific editorials is certain only for the three-year period from 1899 to 1902. A large number of these editorials were written in reply to questions sent in by readers. They range over a wide variety of monetary and financial phenomena. The theory which may legitimately be pieced together from these discursive writings is highly eclectic. Dow's editorials characteristically contain phrases like "not infrequently," "sometimes," "seldom," "nothing in the stock market is certain," etc., and they are reminiscent of the descriptions of the cumulative movements in business activity found in Mitchell. Yet, within this loose structure is a core of principles and rules of thumb that are the basis on which a reasonably systematic pattern or theory of stock market investment may rest.

The gathering together of these editorials re-establishes Dow as a market analyst in the broadest sense. In so doing the author has increased Dow's stature at the expense of his better known interpreters, Hamilton and Rhea. Bishop makes it clear that Dow saw the market as a part of the entire economic system, a system in which economic conditions were basic to understanding long-run market movements. In this system stock speculation played an important but not decisive role. Hamilton and Rhea were misled by attempting to extend the general observational insights of Dow on the stock market into a theory capable of forecasting economic events. By careful observation and the development of statistical tools of analysis, especially index numbers, Dow made an important contribution to financial journalism and our knowledge of stock market behavior. The attempt to extend Dow's position without further refinement of the statistical or analytical techniques and the integrating of these into more general monetary analysis have added considerably to mythology but very little to our real knowledge of market behavior.

Mr. Bishop has also included in an appendix the "Leadville Letters," a description of a trip Dow took to the Colorado mining town in 1879. The letters are better proof than anything else offered in the book of Dow's reportorial skill, his judgment, personal sense of humor, and skill at analyzing and setting forth in simple language the complexities of the corporate and other financial tangles of a frontier mining community.

The volume is marred by two serious flaws. The author does not provide the reader with a careful evaluation of the Dow theory and a discussion of its status among contemporary analysts of the market.

The author correctly suggests (p. 245) that Dow's compilation of a stock price index in 1884 was one of the great contributions to stock market analysis. However, he fails to call attention to the index number literature (for example the Cowles Commission Monograph Number 3) which clearly indicates the substantial statistical inadequacies of the Dow-Jones averages for analytical purposes.

The second flaw is in the style and organization of the book. Originally a doctoral dissertation, the manuscript shows that the author has not sufficiently edited the mass of superfluous detail which, especially in the first four chapters, seriously detracts from readability.

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THE MOVEMENT FOR INTERNATIONAL COPYRIGHT IN NINETEENTH-CENTURY AMERICA. ***By Aubert J. Clark, O.F.M. Conv., Washington, D.C., The Catholic University of America Press, 1960. Pp. 215.***

Reviewed by August C. Bolino
Saint Louis University

This volume is a congressional and literary history of international copyright laws in the United States and is definitely *not* a business history, but it is a very interesting case study of the American political process and it does touch upon many topics which ordinarily occupy the business historian, especially the notions of laissez faire, the laws of property, tariff history, congressional economic alignments, and the development of the printing industry in the United States. The approach is chronological and follows the introduction of bills and petitions with each succeeding Congress. Fr. Clark supplied his own emphasis, "Attention has been centered chiefly upon the progress of international copyright in Congress, and the work of a few dedicated men who made the cause of copyright a personal crusade" (p. viii).

But this is not a mere chronology, for he has woven a fairly tight history around his main thesis, the 100-year struggle to enact an international copyright law in the United States. Although these laws had been passed in France as early as 1810 and in Great Britain and some of the German states by 1837, efforts in America lagged hopelessly as domestic policy fluctuated (or maybe oscillated) between attempts to foster a laissez-faire economy and efforts to stimulate domestic manufacturing — printing in this case. It seems that there was no way to reconcile the rights of foreign authors (as a matter of justice) and the vested interests of the book industry; here we have another illustration of the conflicts created by the flexible philosophy of laissez faire adopted in the United States and so well emphasized in the works of Havens, Lively, Handlin, Heath, and Broude.

In nearly every Congress, the fight for international copyright was renewed. The Clay bill was defeated in 1837, and Charles Dickens' pleas for protection from book piracy went unheeded in 1842. The decisive defeat for revision represented by the Morrill Report of 1873 temporarily closed the case until 1882. In the following year, the American Copyright League was formed with Andrew Carnegie as its financial angel, but its lobby activities were very inferior to those of the protectionists. If there is a beginning to the 1891 law it would seem to be the final protocol of the Berne Convention, signed on September 8, 1886, by Belgium, France, Germany, Great Britain, Haiti, Italy, Liberia, Spain, Switzerland, and Tunis. Under the Convention, international copyright benefits were to be enjoyed by all citizens of the signatory nations and covered translations, newspapers, periodicals, dramas, and adaptions

(p. 135). Thus, the United States was left as the lone important power outside of its principles.

The passage of the Platt-Simmonds Act in 1891, after 55 years of debate, meant that at last the United States would be bound by the principle of reciprocity and that it would be willing to recognize the rights of foreigners (although the 1891 law does so conditionally, because the first law made protection of foreigners dependent upon manufacturers in the United States).

The chief value of this book for business historians is the extensive treatment it gives to the development of the American book industry. The United States Copyright Law of 1790 applied only to United States citizens, thus the domestic printing industry was allowed to print foreign works without payment of royalties. Moreover, the United States tariff laws treated books as just any commodity, hence import duties on volumes were levied which ranged from 5 per cent before 1860 to 25 per cent in the era of the high Republican tariffs. Support for these high tariffs came from publishers, booksellers, trade union leaders, and some academicians (for example, Howells, Holmes, and Whittier argued that American writers needed a strong *American* publishing business). That the absence of international copyright and the high tariff were important to the growth of the printing industry can be seen from these Census figures: In 1860, there were 1,666 printing establishments in the United States having a total capital of $19.6 million and a value of product of $31.1 million; by 1890, 16,566 establishments had $195.4 million of capital and the value of their product had jumped to $275.0 million. These gains were undoubtedly due mainly to the profitability of publishing "cheap books," made possible by the absence of international copyright, manufacturing improvements, economies of large-scale production, the "no proofing" rule which prevailed for these books, and the concentration on known authors, especially English (p. 95).

The economic effects of the new law were varied. The law increased revenue for authors and it fostered the establishment of branch houses of major publishing companies in the United States (because of the provision requiring domestic manufacture), but it sharply reduced the supply of "cheap books." Thus the results of a (legal) monopoly were made manifest again: there was a diminished consumption and a reduced supply of goods on the market. As with most monopoly situations, however, production was more stable, less price fluctuation prevailed, and it was a stimulus to literary efforts by native writers. In the long run, it was probably of benefit to the domestic publishing industry. Nevertheless, for years the United States lagged with respect to international laws. The 1891 law was passed "on the last day and almost the last hour of the Fifty-first Congress" (p. 181). It blotted out what many regarded as a national disgrace, but the United States did not sign the Berne protocol and its "foreign policy" was more national than international until after World War II. This volume terminates in 1891, but the lag which it stresses persisted until the United States became party to the UNESCO Copyright Convention in Geneva on September 6, 1952. By it, "each contracting State undertakes to provide for the adequate and effective protection of the rights of authors and other copyright proprietors."

The most important criticism that can be made of this study is that it too often embarks on literary digressions (although to be fair to the author, it must be said that this is a doctoral dissertation and it is very conceivable that his committee made strong *suggestions* that certain subjects be included). For example, there is the Catholic and non-Catholic view on copyright (Appendix to Chapter I), the history of the novel (pp. 31–34), the history of American drama (pp. 128–131), and listing of the entire program of events of the meeting of the American Publishers Copyright League. But perhaps these are minor flaws in a well-written, well-printed work — one that any historian could read with pleasure and profit.

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THE GREAT ORGANIZERS. ***By Ernest Dale. New York, McGraw-Hill Book Company, Inc., 1960. $5.95.***

Reviewed by Milton J. Nadworny
University of Vermont

Professor Dale's latest book is a significant contribution to business history as well as to the story of management development. In addition, it is the author's hope that an examination of the "methods and plans used by men who have proved themselves great organizers in actual situations may be of help to those who are confronted with a need to reorganize existing institutions" (p. vi). The examples he uses for illustration are descriptions of the leaders and the experiences of du Pont, General Motors, Weirton and National Steel, and Westinghouse. (In the last case, it is the "great reorganization" which is described, rather than the "great organizer.")

The du Pont chapter concentrates largely on the first two decades of this century. Its objective is to portray the importance and value of an "egalitarian" executive committee in achieving effective top level decision-making. Through relatively free give-and-take discussions and joint examination of organizational and operational problems, useful management principles were evolved, and systematic methods and programs were put into effect in the company.

With a shift in emphasis, the section on General Motors focuses largely on Alfred P. Sloan's leadership in reorganizing GM after the departure of William C. Durant in 1920, the establishment of systematic methods and controls, and decentralized operations with centralized staff services. At General Motors there was, of course, both a philosophical and a physical connection with the du Ponts and the du Pont experience.

An apparent contrast to the "group management" approach of GM and du Pont is offered in the description of Ernest Weir and some aspects of National Steel's operations. According to the author, Weir made all the plans and kept control, and the success of the company was an individual achievement.

The reorganization of Westinghouse in the 1930's necessitated breaking down extremely centralized controls and redistributing them. The net results included a dramatic increase in administrative and indirect labor employment and costs, and this aspect of the reorganization is given

detailed treatment. Much of what was accomplished at Westinghouse paralleled du Pont's and General Motors' course, namely, the establishment of decentralized operations, centralized staff, and more effective accounting controls.

The last chapter, "To Whom Is Management Accountable?", opens a new area of inquiry, and it raises at least as many questions as it answers. The connecting thread with the previous sections is the author's assertion that a prime generator of pressures and ideas for organizational and managerial improvements has been the "partial proprietors" who played active roles on the boards of firms, or who participated actively in their management. Professor Dale approves of the idea of forming a national group of institutional investors who would appoint directors to various boards. These directors would, in turn, act as the necessary spur to improvement, just as did the now-disappearing partial proprietors. This chapter is largely tangential to what has been represented as the main theme of the book, and the evidence offered in the previous chapters is not substantial enough to demonstrate the validity of this thesis.

The experiences of the companies and the leaders which are described in this work give us some working models which help to illustrate the development of management ideas and programs in this country. Professor Dale does not propose, however, that these examples and programs can be equally applied to other firms; indeed, he is skeptical of the "universalist" management approach, and of the results of the searches for "principles and concepts that can be universally applied to organization everywhere" (p. 5). He prefers to limit generalizations about management to somewhat carefully circumscribed areas, and favors a "comparative" approach, "an approach which is concerned with the recognition and description of fundamental similarity among different organization structures" (p. 11). Unquestionably, his book indicates that although the companies under scrutiny were in different stages of development, and were faced by different problems, there were more similarities than differences in the solutions arrived at and the courses of action taken. Nevertheless, even these limited case studies illustrate innumerable "universalist" principles.

To be sure, the author is quite right in pointing out that excessive and extravagant claims by so-called universalists and their followers have raised doubts about the worth of their programs. There is not much question that such extravagances will remain with us as long as people have ideas and methods to sell, or "laws" to proclaim. But many of the major issues and controversies appear to have arisen because of attempts to quantify "management principles and laws." For example, the fact that the numerical value of "Graicunas' law" is subject to serious question and contradiction does not render valueless the concept of the span of control. Furthermore, it was the "universalists" who first gave business managers some means and techniques by which to measure, and frameworks within which the latter could evaluate performance and operations; who made businessmen conscious of the importance of organization, of cost measurement, of performance standards, and of the value of integrating many previously disjointed and disconnected activities into a larger whole. Without doubt, both the "comparative" and the "universal-

ist" management theorists aim to develop ideas and systems which are applicable on a broad scale, and not restricted in value to one firm at one point in time. While both approaches may be regarded as different sides of the same coin, as a practical matter, it is difficult to determine where one ends and the other begins.

There is much which challenges the reader of *The Great Organizers*, and he will find here a great deal of valuable information, and many interesting insights into organizational and operational processes. Its descriptions of the ideas and the performances of the managers, and of influences on the processes of decision-making, should prove useful to students of management development, including the practitioners in industry.

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THE RANGE CATTLE INDUSTRY: RANCHING ON THE GREAT PLAINS FROM 1865 to 1925. ***By Edward Everett Dale. Norman, Oklahoma, University of Oklahoma Press, 1960. [New edition.] Pp. xv + 207. $4.00.***

Reviewed by Richard Graham
University of Texas

The 1930 edition of *The Range Cattle Industry* was part of the shift in the historiography of ranching away from reminiscences and colorful, if exaggerated, popular accounts, toward more serious and scholarly works. Not that the quaint western phrase was entirely missing; but the approach was principally through written sources rather than recollections or interviews, and the facts presented were, therefore, more convincing and probably more reliable. Unfortunately, this first edition was a very limited one, and, as the interest of scholars and the intelligent reading public has continued to increase in this type of approach, the book has become a rarity.

The present work is merely an attempt to remedy this situation and is not intended to increase the book's value through new material. In fact, it is little more than a reprint. Although the format and type faces are new, only the preface and, of course, the index have been changed. References to the "Great War," predictions on the course of the cattle business (p. 170) and the size of ranches (p. 119), and a discussion of the role of government in the industry (pp. 177 ff.), all serve to date the book as being "pre-depression." In compensation, an effort to avoid misleading the public is evident in the added subtitle.

The present work is the description of an industry in succinct form. Little emphasis is placed upon the history of particular enterprises or on the financial basis of the industry, and, for the business historian, its chief value lies in the general setting provided for such studies. The book offers the general public a brief, accurate, and well-written introduction to a phase of American economic history whose influence upon our thought patterns and folklore is still very much in evidence.

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SEEDS THAT GREW: A HISTORY OF THE COOPERATIVE GRANGE LEAGUE FEDERATION EXCHANGE. ***By Joseph G. Knapp. Hinsdale, New York, 1960. Pp. 535. $6.50.***

Reviewed by Theodore Saloutos
University of California at Los Angeles

Historians have failed to give the cooperative movement, its leaders, and its accomplishments the attention that they so richly deserve. Be it due to the relative youthfulness of the field, the limited reader appeal it has, or the unavailability of scource materials, the fact remains that a vigorous force in our economy has been neglected. Hence a volume that promises to fill a small portion of this vacuum should be a welcome addition.

Seeds That Grew is an exhaustive, almost anatomical, study of the Cooperative Grange League Federation Exchange of New York from its inception to the very late 1950's. It is based on the choicest kind of source materials: the business records of the GLFE, discussions and interviews with leaders, division heads, and others associated with the organization, and the author's own expert knowledge that has been gained through many years of intimate association with cooperatives.

This study covers about 40 years of the life span of one of the most successful cooperative organizations of its kind. The GLFE was launched during the closing stages of the First World War when a cooperative was viewed as a form of commercial radicalism. It resisted organized opposition, depression, wars, prosperity, technological changes, and the kind of problems that beset any organization. Best of all it demonstrated a capacity of adapting itself to these changing conditions. The number of farms in the territory served by the GLFE during the late 1950's were fewer than in 1918, but larger in size and value.

Several things stand out in the history of this successful enterprise. One is the number of capable men in marketing, management, law, and other fields it attracted who applied their knowledge and skills to the growth of the organization. Second is the remarkable degree of cooperation established between the cooperative, on the one hand, and the agricultural colleges and experiment stations, on the other; and the yardstick of performance that it provided for the commercial organizations. Third is the unfolding of a democratic pattern that should merit the attention of all students of democratic institutions.

A scholar who prefers a more general kind of history that is woven into the general pattern of the times can find fault with a specialized treatment of a special cooperative business. For him it will make laborious reading. But for those who want a close analytical look into the operations of a major cooperative, *Seeds That Grew* will prove rewarding. It should appeal to the historian of business, economics, and agriculture more than to the generalist. The wealth of details, charts, and tables should prove helpful to the cooperative executive, division head, and informed rank and file member who wants to keep abreast of the times.

The willingness of the officers to open their records to Dr. Knapp is both a tribute to their foresight and respect for research, as well as an

acknowledgment of the value of history to an organization. For the officers of the GLFE feel and believe in the spirit of the historian: that the best way of understanding the present and perhaps the future of their organization is by having a better understanding of its past.

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THE CALUMET REGION: INDIANA'S LAST FRONTIER. ***By Powell A. Moore. Indiana Historical Collections. Vol. XXXIX. Indianapolis, Indiana Historical Bureau, 1959. Pp. xiv + 654. $6.00.***

Reviewed by Charles N. Glaab
University of Wisconsin [Milwaukee]

This encyclopedic work traces the history of the Calumet Region of northwestern Indiana, now one of the most heavily industrialized centers in the United States, from its beginning until the end of 1933. Comprising the northern half of two counties fronting on Lake Michigan, this region of sand and marshes experienced little development until Chicago industry began spilling over into the area in the late nineteenth century. Industrial leaders, who were seeking inexpensive plant sites near lake harbors and railroads, created the cities of the Calumet. Hammond began as the site for a slaughterhouse built in 1869 by the George H. Hammond meat-packing company. In 1889, Standard Oil, as part of an effort to utilize the highly sulfureous Lima crude oil of the Ohio fields, constructed a large refinery at Whiting. Inland Steel, which at the turn of the century found it necessary to expand and to decentralize its Chicago operations, turned to East Chicago. Gary, the largest of the cities, grew quickly after United States Steel's decision in 1905 to locate a major plant in the Middle West. Further industrialization and rapid urbanization in the twentieth century aggravated normal urban problems of crime, poverty, unemployment, and ethnic-racial tensions in the Calumet cities.

In recounting these developments, the author has relied on the techniqes and approaches of the local historian. He has consulted a variety of sources — county deeds and land records, state reports, newspapers, city directories, and various types of local histories — to prepare this meticulously documented study. But, in examining the part played by the region's major industries, he has depended upon standard secondary works, such as Paul H. Giddens' *Standard Oil Company (Indiana)* and Rudolf A. Clemen's studies of the meat-packing industry. This restricted framework of investigation limits the value of the book, particularly for business historians. Determinedly objective in his approach, the author has organized much of his material in narrative fashion and has provided little in the way of analysis of the substantial body of facts he has assembled. His occasional interpretations are unoriginal. Nor is he generally successful, although he avows this to be one of his aims, in relating events in the Calumet to national social and economic trends.

Certain contributions result from this intensively local approach. In his chapters on the early years of the region, he describes a number of unsuccessful attempts to build cities in a virtual wilderness. Although he does not elaborate on the point, his material suggests the importance of

town real-estate speculation in frontier areas of the Middle West. His detailed chapter on the effects of strikes and depressions on the people of this industrialized region adds depth to our understanding of American labor problems. His account of experiments in providing education for the children of immigrant factory workers — the work-study-play, platoon system of William Wirt in Gary and the unusual Valparaiso University — illustrates the modification of institutions in an urban-industrial area. As part of a final chapter of regional miscellany, he has presented an original sketch of a significant engineer-inventor, Octave Chanute, a pioneer in railroad bridge-building and aeronautics.

But the work also demonstrates many of the shortcomings of traditional local history. Often, early chapters merely chronicle in detail the rise of minor towns in the Calumet and contain long lists of first settlers, of interest only to readers of narrowly antiquarian persuasion. His chapter on the press of the region is a catalogue of names of newspapers and their editors.

Although the book contains a great amount of raw material of use to the urban historian, it is inadequate urban history. The author demonstrates little knowledge of the vast body of studies dealing with urbanization as a process or with the nature of urban problems. Consequently, he has ignored many questions of concern to the urban historian. He suggests, for example, that the Calumet cities were satellites of Chicago, but fails to analyze the economic relationships between the metropolis and the subordinate communities. He has not examined in any systematic fashion the character of local power structures in the Calumet cities; the relationships between economic development, community leadership, and political behavior; or the character of the associations between local business communities and the corporations that dominated the region. Although his chapter on population is one of his better ones, his general interpretation of the role of immigrants in American life stems largely from Carl Wittke's *We Who Built America*. He does not take into account the criticisms of Wittke's evaluation suggested by the work of John Higham, Oscar Handlin, and others. His approach contrasts unfavorably, for example, with that of William P. Miller, who, in his *Memphis During the Progressive Movement, 1900–1917*, has demonstrated the value of insights derived from social psychology in dealing historically with ethnic and racial tensions in an urban setting. The Calumet Region presents an opportunity to compare the factory city, such as Gary, with older communities, such as Valparaiso and Crown Point, whose growth was slower and whose economies were more diversified, but the author has not taken advantage of this possibility to contribute to our fundamental knowledge of the American city.

Even evaluated as traditional local history, this work is open to some criticism. The author did not use the unprinted records of Calumet municipalities, nor did he uncover any significant amount of the correspondence of local leaders. He has not utilized any records of policy-determining, nongovernmental associations, such as chambers of commerce. In writing community history, a wide variety of sources of this kind are necessary to escape the distortions of newspapers, self-gratulent local chronicles, and adulatory subscription biographies. In short, al-

though this work is a sound collection of facts about a significant region, it is unimaginative in its scholarship and presentation, and makes a limited contribution to urban, economic, or business history. The author's unremittingly dull style of writing further detracts from the interest of the book.

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S. Z. MITCHELL AND THE ELECTRICAL INDUSTRY. ***By Sidney Alexander Mitchell. New York, Farrar, Straus and Cudahy, 1960. Pp. xiii + 178. $5.00.***

Reviewed by Thomas P. Hughes
Washington and Lee University

Sidney Mitchell, whom Herbert Hoover describes in the introduction to this volume as a "successful business man" and public servant, seems to have had several objectives when preparing this biography of his father, S. Z. Mitchell. He surely wished to recount the significant activities of his father as a pioneer engineer-financier in the electrical industry, but he also seems to have intended to discredit the New Deal. The history has not been made more effective by the polemics.

With regard to the history, it suggests a noteworthy chapter in human enterprise. The author functions most effectively when concerned with the financial genius of his father. S. Z. Mitchell flourished as an organizer of utility holding companies in an age (1905–1933) when these companies worked a minor economic miracle: increased the shareholder's dividend enormously and the consumer's rates substantially. The author stresses his father's grasp of a fundamental technique underlying the financial success of the holding company: the drive to " 'spread the risk' of the utility business, so that the effects of a poor wheat crop in Kansas or a bad orange crop in Florida might be offset by a good cattle year or an oil boom in Texas or good apple prices and first-class farming conditions in Oregon and Washington." (Ironically, the younger Mitchell chastises the descendants of Daniel Boone for delighting "in getting handouts [T.V.A.] from other states.")

S. Z. Mitchell was instrumental in "spreading the risk" after he was named head of Electric Bond and Share Company in 1905. Organized by General Electric, for whom Mitchell had worked as a salesman-engineer-financier during the 1890's in the northwestern states, Electric Bond and Share functioned originally as an investment banker, consultant engineer, and managerial expert for a large number of operating utilities in small communities and rural areas whose securities General Electric had acquired and which by 1905 could be described as "cats and dogs." Mitchell and his associates, some of whom were engineers with a flair for management (Mitchell himself had an Annapolis education and was technically trained by the Edison enterprise in the 1880's), made virtue of necessity when, after salvaging the "cats and dogs," they went on to use the technique developed to increase greatly the revenues of and expand small operating companies throughout the United States and abroad. This story is told by the author's account of the formation and functioning of such great Electric Bond and Share organized holding

companies as American Electric Power, American Power and Light, and American and Foreign Power.

The author summarizes the guiding principles of Electric Bond and Share under his father's leadership when making holding companies out of small operators. These were always the same, he writes: "get rid of the traction companies; retire all debt and preferred stock of the constituent companies; merge all these small companies into one big one that can be financed; sell new bonds under a new open-end first mortgage to the public and sell preferred stock locally to retire the underlying securities, to build new modern generating plants and transmission lines to interconnect the plants and, above all, reduce rates and give dependable service." These principles were not only always the same but they were uniformly successful; so much so that the elder Mitchell had established himself by the 1920's to the extent that he could indulge in quaint managerial eccentricities symbolic of success and power: his luncheons for subordinates might last until 9:00 p.m. after Mitchell had held forth for an hour or so on orchids or coon hunting.

While acutely aware of his father's financial genius, it seems likely that the author is less conscious of the elder Mitchell's grasp of engineering fundamentals — certainly this is not stressed in this volume. Mitchell was an example of a phenomenon that a British electrical engineer singled out in the late nineteenth century as an explanation for the rapid advance of the American electrical industry: technical instruction among the money classes.

Mitchell flourished in the engineering era of high-voltage transmission, interconnected systems, and turbine-driven alternators. He knew that the improved load factor made possible by these advances was on the technological level what the "spread of the risk" was on the financial. He may have known that legalistic blocks to such technological mergers of operating companies condemned British financiers to frustration and the electrical industry to relative stagnation in the early years of the century. The elder Mitchell might have realized, as did Owen D. Young of General Electric, that the development of centralized power plants through long transmission lines practically forced Electric Bond and Share into becoming a large holding company.

The author, then, has told the story of S. Z. Mitchell the investment banker much better than that of Mitchell the engineer. Insomuch as the younger Mitchell has not thoroughly researched his brief narrative, it may be that a scholarly biography will encompass the dual aspect of Mitchell, engineer-financier — and of Electric Bond and Share, "an expert engineering and service organization and investment banker."

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THE NATURAL GAS INDUSTRY: MONOPOLY AND COMPETITION IN FIELD MARKETS. ***By Edward J. Neuner. Norman, Oklahoma, University of Oklahoma Press, 1960. Pp. 302. $5.75.***

Reviewed by Robert B. Eckles
Purdue University

Part of the folklore of natural gas regulation is the story that natural gas producers must be regulated because they have a monopoly. Those

who advocate a close control over natural gas production and transmission give enthusiastic support to this theory. It has been used as an argument for the maintenance of regulation by the Federal Power Commission of all phases and segments of the natural gas industry. This book is the first carefully documented study of the problem of field prices and of the question of monopoly on the part of producers. The author's conclusion, based on evidence that is sound, is that for the years under study, 1945 to 1954, clearly there was no monopoly of field prices, and there had not been any in the years immediately preceding World War II.

This is the first examination of thousands of producers' contracts. It gives consideration to the terms of the contracts because they have been sources of trouble. Many contracts, because of most favored nation clauses and provisions for periodic osculation of prices, were deemed to be monopolistic in character and in effect on distributor prices. Here the various clauses, the areas in which they are in force and the conditions operative at the time of negotiation as well as the conditions within the various producing fields are all taken into account and carefully weighed as evidence for monopoly. Conditions within each producing field vary from year to year, and no two producing fields are exactly alike. There was no evidence of monopoly on the part of the producers. As a result, a cherished belief on the part of regulators and those who want to see federal control of natural gas from the well to the burner tips of householders has been dealt a deadly blow by the publication of the facts. It is a bold stroke in favor of those legislative programs that seek a divorcement of federal regulation of the type imposed by the Phillips decision of 1954. This decision by the Supreme Court, it will be remembered, extended the regulatory control of the Federal Power Commission to the well head.

A great deal of attention is given to the possibility of the development of monopolies in field pricing. The author defines monopolies in this industry and discusses thoroughly the situations that might develop under which a producer might act as monopolist. Attention is given to the high cost of market exit on the part of buyers, to the exhaustion of supplies, and to market practices that might lead to monopoly. Competition in the field had prevented the development of monopoly in the years under review. The solution suggested is that legislation might provide for elimination of monopoly but it could establish certain bases to insure fair competition and to protect the public through new regulatory rules and activities. Three bases for regulation to head off monopolies are recommended to fit specific conditions, should they arise. These safeguards are: (1) appropriation of scarcity returns or economic rents; (2) prevention of accrual of monopoly returns to gas producers; and (3) prevention of returns in excess of competitive norms to producers because of contract restraints or buyer immobilities. The attempt to prevent monopoly through price-fixing as envisioned by cost accounting methods under public utility rules is not recommended as a feasible solution to the monopoly problem.

This is a well-constructed and hard-hitting book. Its demolition of the bogies of field price monopolies makes other studies of cost and regulatory problems easier and it may serve as a guide for other students. The

bibliography is excellent. This reviewer can find little to criticize. A reasonable regulatory practice to prevent monopoly is recommended. The author does not advocate doing away with regulation; he wants a rather new and more workable system. More attention might have been given to the situation prevailing in some producing areas in which the big producer cannot meet his contractual obligations without buying gas from many small producers. Also more attention might have been given to the control over small producers that some major pipelines possess because theirs is the only available pipeline for interstate transportation. This book serves as a corrective to the many publications that argue that present regulation is imperative because of the existence of monopolies in field pricing. It should be read by every student of the problems of business and government and particularly of federal regulation of the petroleum industries.

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THE AMERICAN CIVIL ENGINEER: ORIGINS AND CONFLICTS. ***By Daniel H. Calhoun. Cambridge, Harvard University Press, 1960. Pp. xii + 295. $5.50.***

Reviewed by Melford E. Monsees
U.S. Army Corps of Engineers

The civil engineer has probably contributed more than any other profession to the actual development of the interior of this great nation, yet few books have been written specifically about him, his history, or his dedication to duty. In general, he has indicated very little knowledge or interest in the origin, early history, and conflicts of the engineering profession. It would be worthwhile for engineers, who are prone to neglect the reading of nontechnical publications, to obtain Calhoun's book and learn of the development of the professional engineer from late in the eighteenth century to about 1850.

The preface is especially well written and provides very interesting reading. It presents a sociological picture of the development of America. For example:

> **The old way was a way of small towns and a vigorous, migrating yeomanry. If there was slavery, this was an evil that succumbed to the larger conscience. If there were factories, these at least submitted to the Invisible Hand that chastises, blesses, and absolves. Responsibility and choice fell on the individual with an invigorating weight; and there was always the parental village society as a haven of refreshment.**
>
> **Then sometime there appeared modern America: factories owned in large collections by absentee corporations; cities; villages reduced to provincial pigsties; monopoly regulation; salaried businessmen; hired thinking; fragmented values. . . .**
>
> **The engineer gets special attention. Some of that attention is stimulated by extraneous pressures: International conflict has made the engineer a favorite object of newspaper logistics. Another part of the attention arises from the envy that confessedly literate academi[e]s feel toward the numbers and gains of the supposedly half-literate. Part comes from**

obvious details of the engineer's share in "plight" — from narrow opportunities and limited gains that follow bright beginnings. As a type, furthermore, the engineer is useful to commentators because he serves as personal symbol of an industrial society.

The discussion of the problems, prior to the year 1816, includes a comparison between the eighteenth and the twentieth centuries. In this comparison, Calhoun states that engineers, architects, building tradesmen, artists, and mechanics all fall into a general category of *devisers* of physical objects. The engineer seems to have begun simply as the man who had capacity to contrive intelligent or clever ways of doing things. Leonardo da Vinci made a tremendous impression in the Renaissance period as a deviser of a wide variety of civil, military, mechanical, and artistic works. Later Benjamine H. Latrobe, an English engineer-architect-artist, who migrated to the United States in 1796, appeared to have considerable versatility. Unfortunately, there were very few da Vincis and Latrobes in early America.

There was an urgent need to develop transportation facilities in the new country; however, there was much fumbling due to the lack of trained engineers in the United States and to the difficulty of obtaining engineers from Europe. Also, the men who owned or directed canal and river improvements in the early days, prior to 1816, were uncertain how to provide the necessary technical supervision of their projects. A lack of confidence and considerable bickering was evident between the engineers and the sponsors of the projects.

Engineer Latrobe, who obtained his own engineering education in England, is quoted as saying, "No practical as well as scientific engineer could be obtained short of England or France." Records indicated only about 30 engineers or quasi-engineers were in the United States in 1816. By standards of today, these men would hardly be rated as civil engineers. Most of them were surveyors, although some were builders or contractors, landowners, and speculators who had some knowledge of engineering or surveying. Robert Fulton, born in Pennsylvania, was included in this small group. He obtained his engineering training and early experience in England until 1805. His work in the United States was on steamboat construction and the promotion of canal building; however, he never actually got into civil engineering in this country.

Very few of the individuals referred to as engineers were specialists; they did not confine themselves to engineering, but were engaged in other activities. The "foreign" group usually received definite fees or salaries for professional services, while the "native" engineers, although at times they may have received fees or salaries, generally had some kind of proprietary relations to the project for which they worked.

The need for creating a supply of engineers became acute following the War of 1812. The situation was aggravated by renewed building in Europe. The demands for engineering services became so great that qualifications were sometimes relaxed. One canal commissioner was quoted as having said "I would recommend employing Americans solely, and avoiding foreigners; they know very little about the management and conducting of business economically in this country, and the truth

is, the laying out of a path for a canal neither requires conjurers nor wizzards; — practical nature is everything that is necessary."

It is interesting to note that by 1825, when the Erie and Champlain Canals were completed, New York had solved its own engineering supply problem by beginning with a few men recruited from other occupations, then gradually developing a training system within the canal-building organization. These so-called engineers lacked formal technical study, but did acquire practical training in a large public works organization. As the projects were completed in New York, the engineers produced through the training system became available for employment elsewhere. However, the amount added to the national supply was very small in comparison with figures of today. By 1825 only about 67 different persons had worked as engineers or assistant engineers for the New York system. Between 1816 and 1824, the Army Engineers began to relieve the growing demand. An increased use was made of the United States Military Academy as a school for civil as well as military engineers. Then in December, 1831, new regulations included a full statement of the civil branch of the course in engineering and science of war. Many graduates of the Academy became associated with civil works projects and aided substantially in the development of the transportation system of the country. In this connection, a board of 1830 stated that ". . . the pupils of West Point will deliver the country from the quack engineering which has, in divers instances, inflicted deep wounds upon our system of internal improvement."

After 1815, in addition to West Point, scholastic training for engineers was provided to some extent by several other institutions, the most important of which were Alden Partridge's School and Rensselaer Polytechnic Institute. Several less important schools in the South and West taught courses related somewhat to engineering.

The author provides a good description of the typical tasks of the civil engineer. In general, the numerous functions performed by the engineer, during the period of time covered by this book, compare favorably with the tasks of the modern civil engineer. A fairly standard set of specific activities was followed on large civil works projects which were carried through from initial promotion to final operation. The activities included, near the beginning of the history of a project, the engineering "reconnaissance" or "exploration" of the area over which the project was to be constructed; this would be a "cursory examination" and would include the obtaining of basic topographical data with some surveys. As the planning progressed, more detailed surveys were made, together with the development of designs, plans, reports, and cost estimates, for presentation to the management of the organization. After contracts for construction were let, the engineer and his assistants performed inspection duties and maintained a check on the construction. The engineer had considerable power over the contractor and approved the pay estimates and accepted the completed work.

The conflicts and trends, personality clashes, and developments of the professional engineer were products of the times. Bickering over the accuracy of the estimated costs of proposed projects prevailed on many projects. Some may be surprised at the size of the projects. In 1826,

one project was estimated at $22,375,427.69, which startled the backers of the canal and caused them to attack the accuracy of the estimate. In many cases new estimates were made which developed to be no more accurate than the original estimates.

The internal improvement program took a serious setback during the economic panic and depression of 1837. The impact of the depression on the employment of engineers was severe. As might be expected, the engineers and their salaries were subject to attack during the great panic. Calhoun has gathered considerable data on salaries during that time, and covers in detail the growth in stature of the civil engineers, which became a definite occupational group by about 1840. Desiring to promote "an increase in the esprit de corps of the profession," attempts were made to organize a permanent society as early as 1838; however, the goal of a national organization was not fulfilled until the establishment of the American Society of Civil Engineers, which was started in 1852 and obtained permanent status in 1867.

The author is to be complimented on the compilation of a wealth of detail from numerous old records — about one third of the book consists of appendixes, the bibliography, notes and index. Engineers in government and engineers on public works projects should find it interesting reading. Libraries of engineering schools will find it a valuable reference book.

• • •

LINE HAUL: THE STORY OF PACIFIC INTERMOUNTAIN EXPRESS. ***By Samuel W. Taylor. San Francisco, Filmer Publishing Company, 1959. Pp. 310. $5.00.***

Reviewed by Merrill J. Roberts
University of Pittsburgh

In his preface to this volume P.I.E. President Gilbarg emphasizes the hope that it will influence (and even inspire) "youth probing for ultimate careers." Serving this vocational purpose requires a substantial interest in day-to-day operations. As the jacket notes describe this view behind the scenes:

> **. . . You ride with a pickup and delivery driver, who is the first and last link in supplying us with almost everything we use. You go over desert and mountain on a line haul run with the big rigs, and learn to know the modern driver and his problems. You hear the gear-jammer lingo of the roadside cafes. You are with the drivers as they cope with breakdowns or assist stranded motorists. You see the developing innovations in truck design, and learn what is involved in putting a pound of Utah honey on a Los Angeles breakfast table.**

With this emphasis this book can offer little inspiration to the student of business history.

Nevertheless it contains some useful historical insights. It certainly captures the spirit of the chaotic immaturity that characterized the industry until quite recently. One sees a vivid picture of financial instability accompanied by (and certainly attributable to) unbelievably crude busi-

ness methods. As late as 1943, for example, organizing a primitive accounting system capable of keeping track of accounts receivable represented a notable innovation. It appears, in fact, that such "refined" business methods are still far from universal. According to one P.I.E. official, ". . . many companies today — particularly the smaller ones *who can't afford accounting* — lose two per cent of their gross in uncollected bills, year after year, simply because of not asking for what they have coming" (p. 262). [The emphasis on this curious description of firms is supplied.]

In the author's evaluation, P.I.E. was led out of the jungle of chaos by the inspired leadership of the two top company officials during the critical developmental years, President Kenneth Humphries and General Manager Eugene Johnson. Although the account seems overdramatized at times, this success story offers ample evidence of the crucial role played by enterprising management with its passionate search for better operating methods and its consuming appetite for expansion. Since this appetite was fed largely by the purchase of other companies, the book provides some insights regarding the processes and results of such transactions which are particularly interesting in view of the current large-scale merger movement in the industry.

But despite these contributions, one cannot escape the impression that the book is more a public relations piece than a serious study of business history. There is an apparent mission to placate irate motorists by accounts of the Good Deeds of the Knights of the Road. And the discussion of highway financing and user-charge policies is a completely one-sided recitation of the assertions of the trucking industry. The suggestion that large trucks may not pay adequately for highway use, a view that is held by many disinterested students of highway finance and is regarded as highly possible by most others, is dismissed as attributable to the evil machinations of the industry's enemies. At the same time, industry releases citing irrelevant figures are quoted approvingly as clearly establishing the contrary case. Ton-mile taxes, for which a strong case can be made, are dismissed particularly as the work of the devil.

This book is recommended for those who contemplate a career in trucking or are interested in the industry's position on controversial matters. But the fare is rather thin for the serious student of business history seeking insights regarding the forces behind business development.

• • •

THREE FRENCH HISTORIES

Reviewed by Paul J. Meier
University of Massachusetts

Les Forges Francaises en 1772. ***By Bertrand Gille. S.E.V.P.E.N., Paris, 1960. Pp. 208.***

This documentary volume on French ironworks in 1772 forms part of a comprehensive project to publish inquiries into French industries initiated in 1769 when Terray became Minister of Finance and Commerce and Commissioner of Public Works. Guidance for commercial policy seems to have been the main reason for collecting these data. Imports of cast iron from Sweden and Germany were reported to displace the

domestic product, and Terray wanted to establish correctly the balance sheet of national needs and national production at the prevailing price and cost levels. The questionnaire used was fairly general, soliciting information of more interest to the student of metallurgical technology than to the business historian. A conclusive statement limited to observations was supposed to bring forth information on production costs, market conditions, and the extension of sales possibilities.

Mr. Gille gives us the results of the inquiry in 14 administrative units, for which the records have been preserved. The ironmasters' presentation as well as the prefatory observations of provincial intendants and subintendants are not invariably of interest to the historian. Many ironmasters and even some administrators were afraid of increased taxation and their short and presumably factual answers do not seem to be particularly reliable. Other parties discuss the desirable economic and social *ambiance* of ironworks at length without much reference to production efficiency or business profitability. Improvements of communications, access to the King's forests, exemption of ironworkers from statute-labor, and clearance of encumbered titles are among the most frequent topics of complaints. The same complainants usually request the abolition of excise taxes and road tolls on the product!

The material of this collection will be particularly useful for international evaluations of the development of ferrous metallurgy and comparisons with the similar statistical investigations into French ironworks in 1788 and 1810. Some of these expostulations are, however, in tone and point of view close to the arguments of contemporary lobbyists. Turgot's presentation for Limoges transcends the spirit of local partisanship. He recognizes the need for interregional *and* international free trade and comes close to the gist of a problem — of which the other ironmasters appear to be unaware — when he stresses the necessary extension of "la connaissance des procedes dont la cupidite cherche a faire autant de secrets." How could French ironmasters, who widely used charcoal as fuel, compete with the foreign producers, who had commenced a new era in blast-furnace history with the introduction of coke?

La Banque et le Credit en France de 1815 a 1848. ***By Bertrand Gille. Paris, Presses Universitaires de France, 1959. Pp. 380.***

The development of credit and banking operations and policies in France in the first half of the nineteenth century was influenced throughout by conditions incident to the uneven economic development of the country, the concentration of lending capital in Paris and a few minor financial centers, and the economic struggle between the agricultural and commercial debtor groups in the provinces and the financial urban creditor groups. Agrarian and commercial *laissez faire* hindered the development of a strong central bank as well as a nationally controlled banking system. The period under review begins with the end of the Napoleonic Wars, when the Bank of France was prepared to liquidate altogether, and ends with the fall of the July Monarchy, when a great number of private banking institutions had to suspend payments.

An inadequate organization of credit impedes the efflorescence of in-

dustrial capitalism. The author stresses at the outset that the solidity and power of the Parisian *haute banque* was less a strength of engagement than of retrenchment to preserve a relatively limited scope of operations and a small capital. After the eclipse of some of the Genevan bankers in Paris, other foreign institutions, among them the American house of Welles & Williams, found a ready field of activity in international commerce. Their importance appears to have been enhanced by the need to circulate bills of exchange to get the three endorsements making them discountable at the Bank of France. The Bank's restrictive loan and rediscount policy and the scarcity of discount brokers made a singularly unaggressive banking system less efficient than it could otherwise have been. The departmental and provincial banks, of which the former were deprived of the rights of issue and of accepting current accounts, also suffered from the Bank's overly conservative note issue. Most attempts to establish mortgage banks were frustrated by the grip of small capitalists and notaries on the peasantry and the uncertainty of the agricultural production cycle. The *Caisse Laffitte* project, even in its latest moderate version, was the only anticipation of a modern commercial bank. Though unsuccessful, it contributed to the temporary liberalization of the discount and issue policies of the Bank.

The structural weakness of the French banking system is reflected in the limited scope of its operations, too. Discount practices of the *haute banque* were fastidious, and these houses infrequently rediscounted with the bank for prestige reasons. The discount rate fluctuated between 3 per cent and 8 per cent, but higher rates were not rare in the provinces. Credit in the form of cash advances was little developed, and most houses scorned the risk of bankers' acceptances. Credit needs of the growing metallurgical industry brought the successful introduction of *obligations*, channeling large amounts of small savings into industry, whereas public credit relied on short-term treasury certificates and the long-term *rentes d'Etat*, which came only slowly into their own in the course of gradual financial redress of the Restoration period. The growth of industrial joint-stock companies during the boom after 1835 familiarized the investing public with shares, but the author demonstrates conclusively that several sectors of the economy, notably the textile industry, successfully resisted the "intrusion of the banks" through extensive use of family capital and self-financing. Public guarantees, in turn, saved the banks from financially hapless canal and railway ventures. While the *rentes d'Etat* had brought an early trickle of capital inflow, the sale of railway and industrial shares abroad represented the first substantial post-Napoleonic international transactions of French metropolitan banks, tremendously increasing their influence. It is the slow growth of banking functions proper which the author adduces as a major reason for the continuous involvement of many institutions in general commercial operations. Industrial concentration forced some banks to "intrude" into the field more than they seemed inclined to. The handling of private investments and guaranteed issues allowed the banks to monopolize the brokerage function. The author concludes his discussion of banking policies with an extensive description of their vicissitudes caused by the business cycle during the Restoration and the July Monarchy. He under-

lines the magnifying effect on business fluctuations from an insufficiently coordinated credit structure.

Mr. Gille's focus on the banks' major business, credit extension, during a clearly circumscribed period permits him to view them as highly autonomous institutions charting their own range of activities, and very frequently serving rather insufficiently as intermediary between the investment needs of savers and the capital needs of the economy. This fortunate approach refutes the lingering myth that the financial requirements of economic activity easily elicit the necessary institutional arrangements. The conspicuous institutional stickiness of most banks under consideration seems to be mainly due to certain restrictive practices agreed upon by bankers, and to an unexpected concurrence by "informed" public opinion afraid of industrial overproduction caused by easy credit. Another factor contributing to financial stability at the cost of business development appears to be the somewhat passive role of many banks in the flotation of railroad and industrial issues, which were absorbed less by actual credit expansion and risk capital than by deposit reductions, thus shrinking the capital available to the relatively weak consumer goods industries and to agriculture. Mr. Gille correctly points out that small harvests have frequently been caused rather by the migration of circulatory capital from agriculture into industry and commerce than by "crop failures."

An impressive variety of sources have been consulted for this volume: private archives of banks, industrial and commercial enterprises, and individual capitalists, records of notaries and chambers of commerce, public collections of financial documents as well as contemporary and modern literature pertaining to the field. A convincing exposition in three parts — banking system, operations, and policies — would have benefited from more than incidental remarks on French banking doctrine of the epoch and an elaboration of the prevailing restrictive credit theory. A wealth of documentary evidence at times displaces desirable, though possibly conjectural interpretation. Much as experimentation was not the strength of the period, such attempts at a fiduciary circulation as Laffitte's *billets circulaires* would seem to deserve more attention. These footnotes in no way detract from the basic value of this eminent contribution to French credit history.

Cargaisons indiennes Solier et Cie, 1781–1793. ***By Louis Dermigny. S.E.V.P.E.N., Paris, 1959/60. Volume I, Pp. 318; Volume II, Pp. 456.***

The documents presented in the two volumes of this work are an account of the papers and expeditions of the ship-owner Antoine-Jean Solier of Marseille. The author's detailed treatment of the decade of peace in Europe preceding the French Revolution does not limit the scope of the discussion as much as might be supposed. Under one guise or another, the economic and social forces described were at work throughout the period of decline of French power in India and the Americas after 1763. French administrative activity to promote overseas trade had an air of unreality in the 1780's, and the achievements of private French traders under British supremacy are all the more remarkable. Neither abroad nor at home did the French Revolutionary principles totally

eliminate the traders, although they seriously hampered their dealings.

Dermigny's careful genealogical inquiries trace the small-merchant background of the Solier family to southern French Huguenot settlements, from where they moved to Marseille, Geneva, western Switzerland, and, mainly as South American traders, even to Spain and Portugal. The Lake of Geneva region, originally a haven for the persecuted, became their retreat where the capital was accumulated after the adventures. The continuity of the Mediterranean traffic brought nothing but the odd money supplementing the sums acquired (or lost) in the American trade and the India expeditions. Cargoes to the Antilles consisted mainly of wine, edibles, candles, soap, and textiles, with textiles constituting more than 60 per cent of the cargoes destined for the *Ile de France* (*Mauritius*). The nearly total absence of native correspondents, the simultaneous arrival of competitive cargoes, causing a temporary oversupply, and particularly the insufficient amount of specie shipped seem to be responsible for the limited success of the Solier American ventures and their subsequent decline after 1786. The India expeditions, facilitated by reserving the Indian "country" trade primarily for the inhabitants of the *Ile de France* and *Réunion*, supplied beverages, textiles, and metals. Russian iron and Swedish and Turkish copper competed successfully with their Japanese counterparts, when the Dutch "country" trade was restricted, and the French East India Company's failure to develop its trade in western India somewhat increased the limited opportunities for independent Marseille merchants. One of the more profitable Solier enterprises, the triangular commerce between the Indian Ocean (*Ile de France*), the Antilles, and Marseille, was abruptly terminated by the Revolutionary government's declaration of war against Britain in 1793. Napoleonic France's dream of recreating by force an Indian and American empire had no appreciation for the commercial advantages that might be obtained by resourcefulness without conquest.

Nearly half of the explanatory text of the first volume deals with shareholders of *Solier et Cie*. Even though the ships' husbands and the Solier family contributed considerable means, the participation of well over a hundred shareholders appears to be substantial and is reflected in the names of the carriers. French and Swiss Protestant capitalists and suppliers of exports prevailed, particularly Swiss calico-printers of French origin. Some of the larger printers had established Indian settlements well before the Solier voyages and hoped to expand their markets as Solier financiers, others simply wanted to diversify their interests and share in the reportedly fabulous profits of the carrying-trade. A perusal of a contemporaneous stock register of the Bank of France at once reveals the large number of textile importers, calico printers, domestic merchants, and capitalists who had participated in the Solier ventures. It also demonstrates the close affiliation of commercial and banking interests in the *Huguenot international*, which explains the easy passing of the India traders into the financial field when textile imports declined with the change in British commercial policies in the early nineteenth century.

All the arrangements to confine the India trade to British channels tended to make the Solier and other foreign ventures more speculative. The author does not satisfactorily explain why the Solier private trade

necessarily was the first to suffer from the narrowing of the margin of profit and the fall of prices of Indian goods in the European markets. The storing of substantial Solier assets in the Antilles in 1793 is but symbolic of the fall of the *ancien régime* and the decline of French merchants who regarded the world as their province. The relative clarity of the company's finances and the ascertainable trading profits seem to the author to bar the question as to the French national gain from transactions based on large specie shipments that had to be acquired abroad, though through Solier affiliates. France spent indeed little on army and administrative services in India, and the indirect effect resulting from the activity of inhabitants of the *Ile de France* in the "country" trade further improved the French position. There was, however, no diffusion of benefits throughout the French social fabric as were conferred upon the British people by the late eighteenth-century activities in India.

The story told in Dermigny's work concentrates on a rather short period. This limitation, which events external to the Solier business appear to suggest, could help to form a clearer understanding of what occurred before and what came after (in the Solier affairs as well as in the French commercial policies toward India). But the author's unsatisfactory penetration of his material does not shed much light on the transition from mercantile capitalism to pre-industrial large-scale trading as represented by the *Société Maritime* (1792–1802). Full biographical data, which is almost entirely lacking, should have contributed toward an explanation of entrepreneurial policies. A massing of facts about other European trading ventures could have led to a comparison of the different trading approaches used. A study without bias or prejudice must not necessarily refrain from conclusions. The business historian to whom a work in the series *Affaires et gens d'affaires* would appear to be addressed, would like to learn more about the trading practices of the ships' husbands as well as their responsibilities toward the company. How were the profits distributed?

Unstinted praise goes to the careful editing of accounts, instructions, and reports in the second volume with its helpful glossary and indexes.

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BUSINESS HISTORY REVIEW

Developments in Business Administration

This article appeared in the March, 1961, issue of the Weltwirtschaftliche Archiv, published since 1913 by the Institut für Weltwirtschaft an der Universitaet Kiel. Because of the pertinence and broad interest of the study, publication in America seemed highly desirable. Reproduction rights were graciously extended by Dr. Anton Zottmann, editor of the Archiv, and by the authors. The article is printed here directly from galley proof supplied by the Archiv. Commentaries by American scholars will be published in a subsequent issue of the Business History Review.

ALFRED D. CHANDLER, JR.
FRITZ REDLICH

Oil for the West of England

As the oil industry grew, comfortable family firms, hitherto untouched by the ferocities of competition, found their position under attack and their independence menaced. The painful, inexorable process of substituting a new economic order for an old is here detailed from the viewpoint and records of one of the dispossessed.

W. J. READER

A. A. Berle, Jr.

In the intellectual career of one precocious scholar may be traced the course of jurisprudence and philosophy that joined law with economics, dealt with the fundamental problem of democratic restraints upon corporate power, and influenced in basic ways the direction of the New Deal program.

RICHARD S. KIRKENDALL

Niagara Falls Power Project

Harnessing the Niagara for large-scale commercial power exploitation was an entrepreneurial feat of major dimensions. The project also demonstrated the successful application of science to an economic problem. American investors proudly declined European financial assistance, but only too willingly solicited the advice of Europe's leading engineers.

HAROLD I. SHARLIN

Note on Continuity of Enterprise

If an "index of continuity" for business enterprise could be constructed, it would show a distinct rise over the years. Reasons for and significance of this trend are examined, and distinctive mortality rates in various kinds of enterprises are identified. Appropriate data, however, have only recently begun to be recorded. With a sound statistical base, some form of enterprise life insurance may be possible; indeed, certain starts have already been made in this direction.

ARTHUR H. COLE

French Investment in Italian Railways

French investors, their undertakings in Italy oppressed by "an unbelievable mixture of ignorance, government anarchy, and bad faith," appealed for intervention by their government. The controversy gave rise to a remarkable report depicting the condition of Italian railroads and giving vital evidence about government-business relationships of the day.

RONDO E. CAMERON

OVER THE COUNTER

The American Manufacturing Frontier, 1870–1940: A Comment — Andreano

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BUSINESS HISTORY REVIEW

COVER: The Impact of Innovation

Articles in this issue probe aspects of innovation and change in five areas: railroad administration, oil distribution, foreign trade, federal monetary policy, and general business management. (Print from Morgan Collection "The Inception of the World's Railroads," Kress Library of Business and Economics, Harvard Graduate School of Business Administration.)

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Early History of A Railway Organization

The more deeply scholars probe the evolution of management methods and structure, the earlier are antecedents of modern practice detected. The 1882 report on the Pennsylvania Railroad organization exhibits a highly refined conceptualization of big business administration and must stand as a significant milepost in the history of management. Here are to be found many of the ideas and even some of the terminology to which much more recent birth dates have hitherto been ascribed.

by Leland H. Jenks

PROFESSOR EMERITUS
AT HARVARD UNIVERSITY

In December, 1882, the *Railroad Gazette*,[1] then the leading railway journal in the United States, published an anonymous series of articles for the information of "young men in training for position" describing historically the rise of "the division of authority and duty between the various offices" of the Pennsylvania Railroad Company. Apparently it was the first attempt to write the history of the structure of a large modern business concern. It is notable that its objectives were educational. It is even more important for its disclosure of the quality of thinking that could then be going on with respect to general principles of business organization.

[1] "Historical Development of the Organization of the Pennsylvania Railroad," *Railroad Gazette*, vol. 14 (1882), pp. 776–778, 793–794, 809–810.

The "Historical Development," which is here reprinted, was not unique in its day for taking the Pennsylvania as a reference point in discussing organization. That internationally owned railway system was certainly in 1882 the largest private business concern in the world, with more than 30,000 employees on the 3,500 miles of main track which it owned, leased, and controlled east of Pittsburgh and Erie.[2] At least two books had been devoted to detailed accounts of its physical attributes, which had also described much of the formal structure as of about 1875.[3] Its successfully managed finances were an annual object of admiring comment in the financial press of New York and London. The railway press from time to time commended general features of its organization as well as particular methods. With rare enthusiasm Charles Francis Adams praised [4]

> **that superb organization, every detail of whose wonderful system is a fit subject for study to all interested in the operation of railroads.**

Its personnel policies, its procedures for maintaining physical assets, its standardization of equipment and materials on the basis of laboratory tests, its incentive plans for certain categories of employees, had been well publicized.

It would not be true to say that it was "the only road having an organization," or that the officials of no other company gave attention to the allocation of duties and authority as a problem. A non-professional stockholders' committee of the Delaware & Hudson in 1877 "were particularly struck with the system of Government, which is a system of *individual responsibility coupled with commensurate powers*" on their own railroad, "which stimulates ambition, promotes the growth of men, and wins for the corporation and its executives an intense loyalty." [5] On the Burlington system, whose organizational problems were closely analogous to those of the Pennsylvania, Charles Perkins was formulating general principles as a guide to the reorganization of the top management.[6] Following its reorganization in 1879, the smaller Plant system, facing similar complexities as an aftermath of growth, adopted a

[2] The system west of Pittsburgh under the control of the Pennsylvania Company was almost as extensive. But until 1920 it was conducted by two distinct operating organizations, whose relations to the mother company are only hinted at in the "Historical Development." Their operative, as distinct from their corporate, structure, has been neglected in the literature.

[3] William B. Sipes, *The Pennsylvania Railroad* (Philadelphia, 1875); and James Dredge, *The Pennsylvania Railroad: its Organization, Construction and Management* (London, 1879).

[4] Charles Francis Adams, *Notes on Railroad Accidents* (New York, 1879), p. 247.

[5] Delaware and Hudson Canal Co., *Report to the Stockholders of the Delaware and Hudson Canal Co. by the Committee* (New York, 1877), pp. 62–63.

[6] Thomas C. Cochran, *Railroad Leaders 1845–1890* (Cambridge, 1953), pp. 429–436. Other letters from Perkins disclose his familiarity with details of the Pennsylvania organization.

"federal type of organization," with an annual budget and a formal system of advisory committees at various levels.[7] Comptroller Marshall M. Kirkman of the Chicago & Northwestern, having consolidated a position of power for his accounting department, was describing in volume after volume several branches of railway operation in detail, seeking to formulate realizable norms for the management of companies of moderate size.[8] The problems themselves were comparable, if of different dimensions; nor were they wholly new.

For the Pennsylvania was one of the several hundred companies seeking to provide railroad transportation at a profit; these companies in 1882 were in various phases of growth or arrested development. Each of them from the outset had been confronted by problems of organization, for which at one time the armed services had provided the only familiar precedent, and that an inadequate one. To carry goods and passengers any distance with safety and regularity required the coordinated efforts of dozens of individuals, performing a multiplicity of types of work, whose conduct in detail could not be controlled by direct supervision or mechanical device, but which could not be left to chance.[9] So running rules, first printed with timetables on fly sheets, appeared on every line almost as soon as it was ready for operation.[10] But every railway was more than a collection of train crews. By the 1840's, at least, railway officials were talking about "systems" by which construction, maintenance, repairs and accounting were carried out, however crude they presently seemed to be. Officers from different roads were visiting and corresponding with each other to find out how things were being done.[11] They were talking the language of formal organization, distinguishing officers, departments, and divisions from the persons assigned to do the work. They were also conscious of the allocation of authority and responsibility as a prob-

[7] H. S. Haines, *American Railway Management* (New York, 1897), pp. 153–186; the paper was first published as a series in the *Railway Review* (Chicago), Sept. 13 and 27, Oct. 4, 1884.

[8] Kirkman was a prolific writer who seems to have published his first articles under the pseudonym of "Paul Stork" in the *Railroad Gazette* in 1870. His *Railway Revenue and its Collection* (New York, 1877) is the liveliest of numerous books, in all of which the division of authority and duties, as well as of procedures, was discussed at length.

[9] The total number of employees on a railroad ranged from five to ten per mile of main track. Marshall M. Kirkman, *Railway Expenditures* (Chicago, 1880), Appendix A, listed 330 distinct "classes of service" on a typical railway.

[10] Warren Jacobs, "Early Rules and the Standard Code," Railway and Locomotive Historical Society *Bulletin 50* (October, 1939), pp. 20–55, is the only extended description of this phase. As time went on, apparently following British precedent, pamphlets replaced fly sheets, which prescribed in increasing detail the duties and responsibilities of the various categories of train officials.

[11] Thus the organization of several New England railroads is described in detail in Jonathan Knight and B. H. Latrobe, *Report upon the Locomotive Engines and the Police and Management of Several of the Principal Railroads* (Baltimore, 1838).

lem. Here and there boards of directors were approving formal statements of the duties of top officials.[12] By 1848, President Gadsden of the South Carolina Railroad found it necessary to explain at length to a stockholders' committee why he thought formal printed statements were undesirable.[13]

Thus, well before the Civil War, American railways had developed a formal structure, varying in detail, but with several common features well known to railway experts, and quite different from organizations in Great Britain and on the Continent. Notably there had risen the concentration of executive authority in one man, not necessarily an important stockholder, a full-time president, who carried out his duties through a fairly standardized set of distinct functional departments, such as Finance, Engineering, Transportation, Traffic and Legal. A distinction was commonly drawn between activities pertaining to construction and ownership (including procurement of charters, capital and rights-of-way, and problems of expansion and relations with connecting and competing lines) and those involved in securing and transporting freight and passengers. The former were performed exclusively by the president, directors, and a range of corporate officials, with a handful of clerks. The latter, which occupied something like 90 per cent of the employees, were largely under the direction of a general superintendent, with occasional intrusions by a chief engineer and an auditor, reporting directly to the president. The general superintendent was often in charge of the repair and construction of rolling stock, the maintenance of track, buildings and bridges, as well as conduct of stations and operation of trains.[14] All of these features characterized, with differences of terminology and varied combinations of duties, even fairly short and simple railways, such as most of those in the South, railways consisting, in railway parlance, of but a single "division."[15]

From the standpoint of authority, this structure exemplified what Addison Gilmore of the Western called a "monarchical" system, by which, in railway after railway, the chief executive had secured freedom from interference by the board of directors or its com-

[12] The earliest printed specimen seems to have been that of the Baltimore & Ohio in 1847. Cf. "The Baltimore Railroad Co. and its Organization," *Railroad Gazette*, vol. 15 (1883), pp. 165–166.

[13] South Carolina Railroad, *Inspection and Condition of the South Carolina Railroad by the Committee of Six* (Charleston, 1848).

[14] Edward C. Kirkland, *Men, Cities, and Transportation* (Cambridge, 1948), chap. 27 and *passim*; J. L. Ringwalt, *Development of Transportation Systems in the United States* (Philadelphia, 1888), p. 362; Robert C. Black, *The Railroads of the Confederacy* (Chapel Hill, 1952), p. 28; John B. Jervis, *Railway Property* (New York, 1861).

[15] A division varied in length, tending to extend from 50 to 200 or even 300 miles as routines and effective communication became established.

mittees.[16] The power of action thus secured seems to have been monopolescent rather than autocratic. The example of the Erie president who abolished the offices of his department heads for a few months and combined their functions with his own was not copied. There was a chronic tendency as late as 1870 for presidents to issue orders directly to lower operating echelons, and to make appointments, arrange timetables, rates, and regulations without consultation with those concerned in carrying them out. But even before the Civil War the larger companies were stipulating that all orders should be transmitted through department heads and that reports should be made through them.[17] With the lengthening of railway systems and the rise of strategic competition between them, effective decentralization of power became inescapable. By 1861 an eminent engineer held that the principal task of a president in respect to operations was to appoint for every department men who would produce order, regularity, and efficiency, and to consider details only with reference to the performance of these duties or in connection with complaints.[18]

By 1870, outside of New England and the South, departmental autonomy was pretty well entrenched, especially in the fields of transportation and traffic.[19] The general superintendent went up the ladder to be general manager, carrying with him the same aggregation of functions that had seemed feasible when the initial stretch of road had gone into operation. Railways running out of Chicago in the late 1870's were reported as still trying to concentrate all authority in a single, all-powerful operating executive, responsible for all the details.[20] The railway press found an alarming depletion of the ranks of top executives by breakdown from overwork. On the other hand, it was equally characteristic in the period of expansion following the Civil War for companies to be wracked by internal conflict between a number of operating officials, each bent upon widening the scope of his jurisdiction, and upon monopolizing control within that sphere.[21] Each of the departments found it

[16] Cf. Kirkland, *Men, Cities, and Transportation*, vol. II, p. 444.

[17] The first printed instruction to this effect that has so far been found was in New York & Erie Railroad Co., *Organization and General Regulations for Working and Conducting the Business of the Railroad and its Branches of the New York & Erie Railroad Co., February 21, 1852* (New York, 1852), articles 2 and 30. Later in the year the Pennsylvania adopted the same phrasing and so did the Fort Wayne in 1856.

[18] Jervis, *Railway Property*, pp. 252–253, 330–331.

[19] "Railway Management," *Railroad Gazette*, vol. I (1870), p. 459.

[20] "Chicago," *Railroad Gazette*, vol. 10 (1878), p. 567. Charles Perkins lamented in a private memorandum that most railroad corporations were "trying to operate with the same governing and supervising machinery adapted to very much shorter and simpler lines of Road." Cochran, *Railroad Leaders*, p. 429.

[21] The first edition of Marshall Kirkman, *Railway Revenue* (New York, 1877), chap. 1, described the typical railway organization with biting irony as a power structure torn with strife. The passage was much modified in later editions.

necessary to recognize growth by territorial subdivision. But effective coordination between the segments tended to be lacking at any point below the top. The feeling was widespread that there were limits to the extent of railroad that could be effectively operated under what Perkins called a single "unit of management." But even within such limits, the task of adjusting railroad administration to the consequences of expansion called for rational consideration, deliberate search for improved methods, and extensive acceptance of standards of excellence, in administration as well as in technology.

An increasing volume of inside criticism in the late 1870's and 1880's deplored the prevalence of *ad hoc* and idiosyncratic solutions to generic problems. It assailed the prevalent lack of continuity in positions and methods. The mobility of personnel at every level was also disturbing. It was expensive to break in a new executive drawn from outside the organization. It was also a chronic source of personal insecurity, which had consequences for the quality, dependability, and *esprit de corps* of the entire army of railroad employees. A rational, positive, dependable personnel policy was urged, one which would provide permanence of tenure for a large proportion of officials and subordinates, and which would link appointments at every level to the potentialities of candidates for further promotion. "An essential element in a system of railway management," declared the editor of the *Railroad Gazette* in 1880, "is that it should be calculated to train persons competent to fill places of responsibility and authority; it will not do to rely on chance for supplying fit persons. The system should form them, and it will, if properly organized." [22] Thus, discussion of personnel policy led back to questions of the allocation of authority and responsibility, about which railway officials themselves had much to say.

Characteristic structural problems in the 1880's included the relation of the division to the system and of the division head to departmentalized or other superiors; the relation of officials responsible for moving passengers and freight to those responsible for the soundness of the roadbed and track, rolling stock and other facilities; the relation of all of these to officers concerned with procuring the business; and finally the relation between functions of coordination, auditing control, and establishment of policy, standards and uniformity with respect to every class of railway activity.

In all of these matters of structure and personnel, which were

[22] "Railroad Organization," *Railroad Gazette*, vol. 12 (1880), pp. 358–359.

regarded as crucial for the cost and safety of operations, informed critics held that standards of excellence existed. The Pennsylvania was thought to have realized them more successfully than any other company. So the history of its organization is a major contribution to the understanding of how, by the 1880's, it was possible to organize a system of its magnitude to function effectively. In retrospect, it cannot be said that the solutions reached by the Pennsylvania were wholly satisfactory. They were maintained, however, with relatively minor readjustments, until 1920.

It is significant that while the author of "Historical Development" devotes attention to the arid details of formal organization in successive decades, he roundly asserts that these matters are relatively unimportant. It is true that in tracing structural development he documents the increasing precision and detail in the allocation of duties, the mounting complexity and multiplicity of official positions, reference both to functions and territory in the assignment of tasks, and the growing discrimination between line and staff positions, and between responsibilities for "independent direction," "supervision," and "active execution." He even more clearly brings out the adaptive character of the Pennsylvania organization, an adaptation not only to external circumstance and changing tasks, but to the talents of available personnel. Thus while the Pennsylvania provided for the division and control of power, it provided for the survival of the organization and its components in the case of death, retirement, or separation of any individual.

However, what has impressed the author of "Historical Development" is not this changeable formal structure, but what he calls "the informal organization" of the road, by which he means the practices and underlying policies which have grown up and are steadily maintained as a matter of custom, without specification in printed statements. Attention is directed to the policy of promotion from within on the basis of proved merit, abhorrence of nepotism and "pull," provision for replacements at every level, delegation of authority as well as responsibility, with its corollaries of self-restraint and noninterference on the part of superiors, encouragement of initiative, freedom of intercourse between officers at the same and different levels, and an emphasis in appointments upon general abilities, such as "to get on with, submit to, and control human beings" rather than specialized abilities. Also informal, but officially expounded, was the policy of recruiting educated men of good family, and of providing specific training for promotion in

several lines of a possible career.[23] The relative accuracy of many of these observations is borne out by the casual comment of numerous contemporary observers. The author of "Historical Development" pulls them together in a more or less orderly manner, points out their dynamic relation to the formal structure, and notes the way in which principle has been balanced by principle. In another article, tentatively identified as being by the same writer, the organization of authority on the Pennsylvania is referred to "a uniform principle, making the head of each subdivision of labor its representative as well as a mere subordinate in charge of orders emanating from his superiors."[24] It was many decades before the literature of management was to be enriched by clearer conceptions of "informal organization," countervailing forces, and authority from below.

In the light of later developments in the railway management movement, it might be wished that the author of "Historical Development" had dealt more fully with some other points. By comparison with what can be learned of other business organizations of the day, one is impressed by the free flow of information as to matters both of technology and of method into and through the organization.[25] Pennsylvania officials had been schooled by books as well as by experience, diligently read the journals of their trade, and participated actively in the meetings of a dozen quasi-professional associations that had sprung up for the interchange of ideas between holders of similar positions in different companies. The transportation officers indeed established an association of their own, with monthly meetings, and, eventually, printed proceedings.[26]

Within the organization the crystallization of ideas was facilitated by the frequent use of *ad hoc* committees, entrusted with such staff functions as the revision of tables of organization and rule books, development of standards, and the simplification and reduction of blank forms.[27] In the last-named field, a standing committee had been set up, whose approval was necessary for the introduction of new forms. We hear blanks referred to as "a sort

[23] Cf. George L. Vose, *Manual for Railroad Engineers and Engineering Students* (Boston, 1872), esp. pp. 432–433; *Railroad Gazette*, vol. 4 (1872), p. 204; and esp. *ibid*, vol. 7 (1875), pp. 413–414, 502–503, 511–512.

[24] "Work at Altoona," *Railroad Gazette*, vol. 14 (1882), pp. 499–500.

[25] Cf. "Observations on the Pennsylvania Railroad," *Railroad Gazette*, vol. 10 (1878), pp. 530–532. The Pennsylvania system of government assumes "that there is much that is worth knowing of which the managers are ignorant, and that it is profitable to employ other persons and any available means for acquiring information and increasing knowledge."

[26] *Railroad Gazette*, vol. 14 (1882), pp. 580–581. One of its objectives was "the advancement of its members in the science of railway management." Its formation was attributed to Frank Thomson, then General Manager.

[27] Cf. *31st Annual Report . . .* (Philadelphia, 1878), pp. 189–190; *Railroad Gazette*, vol. 14 (1882), pp. 577–578.

of machinery for keeping rules in operation," a preferred substitute for "nagging and scolding orders." The "Historical Development" calls repeated attention to the use of less formal conferences of officials for purposes of communication and control.

While the "Historical Development" explains the importance of coordinating traffic and transportation departments and points out the multiple lines of responsibility involved in customer relations, it does not clarify other important structural changes, and barely hints at the complex infrastructure through which actual operations were carried out. In subsequent discussions of railway organization, a great deal was made of what was called the "divisional" type, of which the Pennsylvania was the best-known example, contrasting with the Vanderbilt roads and all foreign railway systems, which maintained into the twentieth century what was called the "departmental" type. At issue was the level at which the activities of operating trains, maintenance of way and provision of rolling stock should be coordinated. Railways everywhere spoke of departments for each of these activities and provided an officer at nearly every management level with specialized responsibilities in these respective areas. They also divided work territorially. Under the division plan, coordination started with the division superintendent, who over his territory was responsible for what went on in all three fields. Under department types of organization, the responsibilities of the division superintendent for track or motive power or both were secondary, and effective coordination was carried up to the level of the general manager or operating vice president. It seemed impossible to have both geographical divisions and departments in the same system of organization without involving a conflict of authority.[28]

It cannot be said that the Pennsylvania formulation of duties as of 1882, which crystallized its divisional organization for a generation, was free from ambiguity. Each division superintendent was fully responsible for maintenance of way, admonished only by a chief engineer on the general manager's staff. As to motive power, machinery, and shops, the division also had substantial control of all personnel matters. But the superintendent of motive power (an

[28] The first public clear statement of the dilemma that I have noted was in an editorial on "Railroad Organization," *Railroad Gazette*, vol. 12 (1880), pp. 358–359, where it was suggested that the conflicting principles involved could be reconciled by what was later to be called a "functional" division of authority. A series of articles by an anonymous superintendent, "The Operating Department and Management of a Railroad," *Railroad Gazette*, vol. 17 (1885), p. 769 and succeeding issues, precipitated a lively controversy with "Roadmaster" and others analyzing in detail the organizational conflicts at issue. For standard accounts of the problem see Ray Morris, *Railroad Administration* (New York, 1910), chap. 4; and L. F. Loree, *Railroad Freight Transportation* (New York, 1922), pp. 132ff.

assistant to the general superintendent and coequal in rank with the division head) still dealt directly with the heads of shops on all matters relating to mechanical execution, inclusive of the distribution of materials and the supervision of shop accounts. In stark brevity, the Rules of 1882 epitomized the situation as follows: [29]

> **Master Mechanics and General Foremen of Car Shops report to, and receive their instructions from the Superintendent. They must obey the orders of the Superintendent of Motive Power.**

With one officer "exercising all of the powers of the general superintendent necessary for the proper management of his division," and another dealing directly with some of his subordinates as to methods of efficiency and economy, there was a functional division of authority, in which the line of demarcation was faint. In practice there was a dual responsibility for both efficiency and economy, a system of counteracting forces, in which the general superintendent was the occasional arbiter.[30]

In subsequent brief articles the same author expounded the principles of the divisional plan and examined the special conditions under which the departmental scheme had seemed appropriate.[31] He also analyzed the way in which the Pennsylvania system had solved the organizational problems presented by its extension, especially through the structure of the Pennsylvania *Company*.

Authorship of this pioneer research effort may be confidently ascribed to Charles L. Condit, who for a couple of years was an assiduous contributor to the *Railroad Gazette*, displaying unusual capacity for working up by interview and reading numerous subjects as to which he had had no direct experience.[32] "Historical Development" appears to belong to a series of articles dealing with various phases of the operative organization of the Pennsylvania system, including the motive power department, freight accounts, and car service.[33]

[29] Pennsylvania Railroad Co., *Rules and Regulations for the Government of the Transportation Department* (Philadelphia, 1882), art. 336. Curiously the author of "Historical Development" seems not to have made use of the series of publications of which this item forms a part, which probably began in the 1850's. This is the prime source for successive definitions of duties of all categories of officials below the level of division superintendent, which the author largely ignores.

[30] These comments have drawn upon a committee report on "The Modern Railroad Shop – its Organization and Operation," made Oct. 20, 1909, to the Altoona Railroad Club of the Pennsylvania Railroad, and printed in its *Papers and Discussions*.

[31] *Railroad Gazette*, vol. 15 (1883), pp. 45–46 (Pennsylvania Company); p. 64 (Lake Shore); pp. 128–129 (Erlanger system); pp. 165–166 (Baltimore & Ohio).

[32] A critic in a rival journal accused him of duplicity in gathering material from underlings and using it without credit, and of pretentiousness in undertaking to write "the theory and practice – of railroad management." He is said to have been a young doctor who took a job with the *Gazette* as canvasser for subscritions. *Railway Age*, vol. 8 (1883), pp. 464, 572.

[33] *Railroad Gazette*, vol. 14 (1882), pp. 467–468, 497–498, 535, 551, 577–578, 732; vol. 15 (1883), pp. 35, 53, 292–293 (a copyrighted series), and pp. 458–459.

Historical Development of the Organization of the Pennsylvania Railroad *

I

The object of this paper is to give some facts in connection with the development of the organization of the Pennsylvania Railroad Company, to show how and by what steps this organization became what it is, and, so far as may be, why these successive steps in the development were taken.

There is no subject about which young men in training for position seem more anxious for information than the division of authority and duty between the various offices which make up a railroad company. This anxiety is sometimes based on the misconception that definite and formal division of duty is a necessity in a good organization, and accompanying this a delusive hope that a knowledge of similar duties and positions in other companies will define limits in one's own. It is true that in each railroad there is a natural grouping of duties because of a necessary connection between them, but excepting those of purely technical character, and even sometimes, as regards these, the most practical question about the duties of any position usually is, "Who is to fill it?" and especially is this true in those early years of an organization when natural capacity rather than special training makes up the main difference between officers, and to some extent it must always remain true as regards those more responsible positions which will be filled by men who will strengthen the organization by special capacity or experience rather than fit into any nicely divided set of responsibilities.

A preliminary statement of such common-place facts will prevent, it is hoped, misconception of what may be further said in stating the views of a variety of minds upon the other and more theoretical aspects of this question.

At the time of the issue of its charter the organization of the Pennsylvania Railroad Company consisted of S. V. Merrick, Esq., President; Geo. V. Bacon, Treasurer; J. Edgar Thomson, Chief Engineer, with assistant engineers.[1] Herman Haupt, one of the assistant engineers, was, however, soon appointed Superintendent of Transportation;[2] and for some time Mr. Thomson bore the additional title of General Superintendent.[3]

* Footnote references are those of present author, with the exception of those marked with an asterisk, which were part of the original text.

[1] Thomson (who had been with the Georgia Railroad Co. since 1834), was named chief engineer at the second meeting of the board, April, 1847. President Merrick presented a detailed plan for the organization of the engineering corps, which provided that assistant engineers as well as the chief were to report directly to the board. Thomson's "first assertion of his position was to demand that they should be responsible solely to him." George H. Burgess and Miles C. Kennedy, *Centennial History of the Pennsylvania Railroad Company, 1846–1946* (Philadelphia, 1949), p. 45. Cf. Pennsylvania Railroad Co., *By-Laws of the Board of Directors, adopted April and May, 1847* . . . (Philadelphia, 1847), pp. 7–8.

[2] The date was September 1, 1849, when the first stretch of track was opened for business. William B. Wilson, *History of the Pennsylvania Railroad Company with Plan of Organization* . . . (Philadelphia, 1899), vol. I, p. 57ff.

[3] From June, 1849. Wilson, *History of the Pennsylvania*, vol. I, pp. 57ff., states that, as general superintendent, Thomson "devoted a large part of his time to the subject of organizing a system for conducting transportation. In this he was largely assisted by his personal assistant, Herman Haupt . . . an organizer of more than ordinary ability." When

In August, 1849, Mr. Merrick resigned the presidency, but continued a director of the company, and Mr. W. C. Patterson was elected to his office, the salary of $5000 continuing, notwithstanding an attempt to reduce it to $3000 (the salary of the President of the Baltimore & Ohio Railroad Company), on the ground that Mr. Patterson was not an engineer. This movement on the part of a minority of stockholders advocated the union of President and Chief Engineer in one person, and probably was one of the causes leading to Mr. Thomson's election to the presidency in 1853.[4]

Previous to this date Mr. Haupt had assumed the full duties of General Superintendent, which however he resigned in the early part of 1852.[5] It is very plain that while there had been no clear, definite division of duties, he had in some measure held a position of control over rates as well as over transportation, motive power, and perhaps, maintenance of way. He had advocated a policy which there is occasion even at the present day publicly to defend, namely "a uniform tariff of rates is not applicable to a business which is inconstant and fluctuating. There is one principle which can be assumed as a general one and of universal application, and that is, that changes must be made when circumstances require them; on no other, can the operations of a railroad be conducted with success." [6]

The fact that Mr. Haupt could have been charged with insubordination indicates the looseness of the organization at this period. In 1853 he was appointed Chief Engineer of the company by Mr. Thomson.

The first printed "organization" bears date November, 1852.[8] Its division of duties is as follows: Construction Department, under a Chief Engineer (Edward Miller); Transportation Department, under a "Superintendent" (Herman J. Lombaert), with four assistant superintendents: the first assuming charge of maintenance of way, the second motive power, the third becoming local superintendent at Pittsburgh, and the fourth assuming the same position at Harrisburg.[7] The First Assistant

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the latter became superintendent of Transportation he "made an examination of the systems of bookkeeping and modes of operation of the more important railroads of New England and New York. . . ." On his return to Harrisburg after two months "he was prepared to arrange a plan of organization for the company" which was approved by Thomson and the board.

[4] Possibly a misprint. The date was Feb. 2, 1852. Burgess and Kennedy, *Centennial History*, p. 55.

[5] Haupt's dates in this office were Jan., 1851–Nov. 1, 1852. Wilson, *History of the Pennsylvania*, vol. II, p. 283.

[6] Report of 1852.

[8] Pennsylvania Railroad Co., *By-Laws and Organization for Conducting the Business of the Road* (Philadelphia, 1852). The series thus begun seems to have been the principal documentary source used by the author of "Historical Development." The "Organization" section commences: "That the duties, powers and responsibilities of the several officers and employees of the Pennsylvania Railroad Company may be defined and fully understood, and its accounts systematically kept, the Board of Directors have adopted the following organization for conducting the business of the road." The terminology had clearly been influenced by that in a similar document of the New York & Erie Railroad Company, *Organization and General Regulations for Working and Conducting the Business of the Railroad and its Branches, adopted by the Board of Directors, February 21, 1852* (New York, 1852).

[7] George R. Mowry was the first assistant. Wilson, *History of the Pennsylvania*, vol. I, p. 91. The assistant superintendent at Pittsburgh was Thomas A. Scott, later president, who had the special tasks of arranging through schedules to the West and appeasing residents of Pittsburgh. Burgess and Kennedy, *Centennial History*, p. 342. A. M. Roumfort, a West Point man who had been superintendent on the Philadelphia and Columbia was the assistant superintendent at Harrisburg. Wilson, vol. I, p. 92, states that he "was really the

Superintendent (known also as Resident Engineer), was located at Altoona; the Second Assistant Superintendent (Mr. Enoch Lewis) was also located at Altoona; and under him were the foreman of shops, and a "Car Inspector of the Pennsylvania Railroad." There were also a General Freight Agent, a General Ticket Agent and an Auditor, all responsible directly to the President. Under the Auditor was a "Clerk of the Freight Department" in charge of freight accounts. Finally the Treasurer, in charge of the Treasurer's Department. The Vice-President (Mr. Wm. B. Foster) signs the annual report with the President for the first time in 1854. In 1854 there is also the beginning, in the Superintendent's report, of that careful and thorough system of division of accounts for which the Pennsylvania road is so justly celebrated. No full and complete statement of this division, however, appeared in print until the second (in order) organization, issued in 1858; and it should be stated that this system of division, which has been extensively adopted throughout the United States, had its origin in a plan of accounts made for the Georgia Railroad by Mr. Thomson when he was its Engineer, and perfected by him and Mr. Lombaert at this period, still further improved as to minute details by later officers of the Pennsylvania Railroad Company. In 1858 (the company at this date had obtained control of the entire line now known as the Pennsylvania Railroad) the revised organization provides for a *General* Superintendent, four division superintendents, two resident engineers, in charge of maintenance of way, and a Master of Machinery in charge of motive power.[8] The office of Controller is also created, and filled (he becomes also Auditor) by Mr. Lombaert, formerly Superintendent. In 1859 the "General Foreman of the Car Department" reports to the General Superintendent (Thos. A. Scott) as do also the resident engineers, the Master of Machinery, and the Chief Engineer of the Canal Department.[9]

For many years the title of Chief Engineer of the Pennsylvania Railroad appears to have been dropped; but in 1862 Mr. W. H. Wilson, who had been a Resident Engineer, filled this office, reporting to the General Superintendent.

At this time the organization of the Pennsylvania Railroad Company as it now exists began to take definite and fixed form; and we may with advantage point out its order of development as it has thus far taken place.

At the beginning of its affairs, we see very plainly the chaos of inexperienced control. It is always a delicate matter to discriminate as to relative merits in a disagreement after a period has elapsed; a study of facts has, however, left some impressions. President Merrick was a man not careful to use tact, but possessed of a stability of character and mind making him in a certain sense the corner stone of the movement resulting in the Pennsylvania Railroad. He was or had been engaged in the manu-

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first disciplinarian on the road," but his attempt to put train crews in uniform was not successful. Roumfort was also responsible for organizing the baggage service.

[8] *Organization for Conducting the Business of the Road. Adopted December 2, 1857* (Philadelphia, 1858). By its terms the general superintendent (now Scott) was given full charge of the Transportation Department, inclusive of road, motive power, shops, cars and operation of trains and stations. But there was, as for a couple of decades, a general freight agent reporting directly to the president.

[9] According to the *11th Annual Report* these officers were so reporting by 1857.

facture of fire engines, and his judgment in mechanical matters was highly valued, although his influence was more largely due to strong, pure character. To President Patterson, a man of like character and a thorough gentleman, was due part at least of the financial success of the undertaking, and to him may be given the credit of choosing the men who made the road successful. We may be mistaken, but have reason to believe that both Mr. Thomson, Mr. Scott and other successful men entered the service during Mr. Patterson's ascendency [*sic*].[10]

The Chief Engineer and the General Superintendent are the working organization in the beginning, but their positions are not clearly defined; as practical men they do not hesitate to criticize the policy of their inexperienced superiors. The General Superintendent clearly sees, in the light of his everyday experience, the sound and necessary policy on which rates must be based, and states his views at length in his reports, although they are evidently opposed to the controlling policy of the company; it is the beginning of that practical control of experience in railroad affairs which exists throughout the world and must exist even when legislators become railroad operators.

It must not be supposed that the change of officers was effected quite on the issues here presented. There was a party and a party conflict.[11]

Nevertheless, we are inclined to believe that the question of practical experience as against the inexperience had also a place which made it in some measure the principle involved. Mr. Patterson represented the party who suffered defeat which we believe to have been unfortunate for the road, not in the other party gaining ascendency, but in the loss to it of influences of the very highest character.

Mr. Thomson was a man not without errors; but he possessed strong characteristics which, we are inclined to believe, developed the starting point of the road as an organization. He organizes the company, and makes this theoretical organization a fact by respecting the positions in which he places his subordinates.[12]

It is not here asserted that so vigorous a mind, which perhaps more than any other has left an impress upon this great railroad, did not control and often determine the policy of his officers in their various departments; but if he at times and to a limited extent did this, his policy was known through their acts. He would uphold a trusted officer to almost any degree, whatever this involved; and the strength of the Pennsylvania organization lies to-day in the development of the principle, that control must flow through the organization, reaching subordinates only by the acts and words of their own immediate officers.[13] This principle begets

[10] As to Thomson this date conflicts with an earlier statement and with the facts.

[11] It has been noted that one issue in the conflict was that of having an experienced transportation man rather than a financier as chief executive. It appears, however, that the specific issue upon which Thomson became president was his proposal to finance a plan of expansion by a large bond issue, for which he secured stockholder approval. Burgess and Kennedy, *Centennial History*, pp. 59–65; William B. Sipes, *The Pennsylvania Railroad* (Philadelphia, 1875), p. 31.

[12] Cf. Sipes, *The Pennsylvania Railroad*, pp. 22–23, for similar statements in appreciation. Sipes mentions also his taciturnity, slowness of decision, and patience in listening to others.

[13] Formal statement of this principle appears in early editions of the *Organization*. For instance, that issued in 1858 states: "All instructions emanating from the Board of Directors, or President, in regard to the proper business of either of the departments, shall be

official self-respect, harmony of action and freedom of consultation between officers of various grades; and has prevented that injurious *post mortem* weakness of organic cohesion often left by strong personalities in societies with which they have had to do. The admirable vitality of the principles embodied in the organization, the definite character of the influences which permeate it, bear evidence of an origin in strong personal power; the continued progress and vigorous development of internal policy by the road, which have justly given it the title of "the only road having an organization," • bear still stronger evidence to the conclusion that the early subordinate officers were supported rather than created by this influence. The test of strength on the part of any organization is what becomes of it, and what it becomes in its development by its first principles on the decease of its originators.

The various departments of the road group themselves in the course of their experience. Naturally, the general management of transportation controls both motive power and maintenance of way, and at first the heads of these departments are merely assistant superintendents.

The accounting office finds its head in an independent officer, as does also the department controlling rates. The Vice-President is the President's assistant in new enterprises, and in affairs involving relations with other roads. By the organization of 1863 (revised 1866) the First Vice-President continues these duties, but they are now clearly defined. A second vice-presidency is created in charge of the accounts of the company, and naturally develops into a care over finances. The President is given an assistant "who shall be an engineer," and who begins that part of the organization which we shall designate the President's staff. The Transportation Department undergoes fundamental changes. The duties of the General Superintendent are more clearly defined; and it falls to him to define the duties of the Chief Engineer, Superintendent of Motive Power and Machinery, and of the Assistant Superintendent. He is also empowered under the directions of the President to make special rates for local freight on the road and its branches.

The Assistant Superintendent is placed in special charge and oversight of the distribution of rolling stock.

The organizations of these dates have small differences. About one point there appears to be change in the revised organization (1866) which is not made quite clear. In 1863 "Division Superintendents shall *on their respective divisions* (subject to the direction and approval of the General Superintendent) exercise all the powers delegated by the organization to the General Superintendent, for the management of the road, its branches and connections, for the transportation of freight and passengers, including the movement of motive power employed thereon, whether engaged in the transportation of freight or passengers, or in the supply of food and material, etc." "They shall carry into effect such directions as the Superintendent of Motive Power and Machinery may give from time to time, in relation to the maintenance of the locomotives, cars, and other machinery of the company."

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given through the heads thereof." The statement had appeared in almost the same words in article 30 of the New York & Erie *Organization* of 1852.

• Quoted from a well-known officer of another road.

In 1866 division superintendents "exercise all the powers of the general Superintendent which are necessary for the proper management, oversight and control of the division, except such as have been committed by him to his three assistants, viz., the Chief Engineer, the Superintendent of Motive Power and Machinery, and the Assistant Superintendent, of which the division superintendents shall be kept informed by him" — no further definition of duties following.[14]

The road is divided into three divisions, each in charge of a Division Superintendent, a Resident Engineer, and furnished with a repair shop in charge of a Master Mechanic . . . .

A like organization, under a General Superintendent is established on the Philadelphia & Erie Railroad.

Previous to this date (1866) purchase of supplies appears to have been committed first to a clerk, then to a Supply Agent, both responsible to the General Superintendent; but a "Supplying Department" in charge of a Purchasing Agent is now created, which is to furnish supplies on order of the General Superintendent, or of such others only as he shall authorize.

The Purchasing Agent is located at Philadelphia, and under him, in charge of the storehouse, also located in Philadelphia, is a Head Keeper of Stores.

The General Freight Agent and the General Ticket Agent are independent officers, responsible to the President.

In the Accounting Department (under the Second Vice-President and Controller) are the Auditor, First Assistant Auditor (in charge of accounts relating to the earnings of the Pennsylvania Railroad); the Third Assistant Auditor in similar charge of the earnings of the Philadelphia & Erie Railroad; and the Second Assistant Auditor in charge of all disbursement accounts — whose signature is necessary previous to the payment of any bill of whatever nature.

General orders from the Accounting Department are to be sent through the General Superintendent to the officers and agents of the Transportation Department, including station, freight and ticket agents.

A Legal Department is established by appointment of local solicitors for 11 districts on the Pennsylvania road, Philadelphia being one; and for four districts on the Philadelphia & Erie. These report to the Assistant Secretary.*

Payment of wages to employés requires the signature of each to his payroll account. All other expenses are to be paid by a draft on the Treasurer

> in the form of estimate or certificate, on which shall be copied the bills or the items for which payment is made from a certified bill from the foreman or other proper receiving officer, and from the contracting officer who shall certify that the articles were for the use of the company and purchased at the lowest cash rates – which certificates shall be endorsed by the head of the department for whose use the purchases

[14] The ambiguity and instability of relations between divisions and departments in the 1860's might be illustrated even further. Under the 1866 formulation it was by no means certain that duties on the several divisions would be homologous. This aspect of the matter was taken in hand by a special committee in 1874. Cf. pp. 169–170 for further discussion.

* Who afterwards became general solicitor.

were made, and shall have been examined and proved by the Second Assistant Auditor before being paid. When the amount of the payrolls and vouchers has been ascertained, a certificate of the same, signed by the Controller, shall be sent to the Treasurer, upon receipt of which certificate the Treasurer shall place the amount required to the credit of the Second Assistant Auditor. The amount thus placed to his credit shall be drawn by checks and vouchers of such amounts and at such times as may be necessary. . . . All instructions emanating from the board of directors or President in regard to the proper business of either of the departments shall be given through the head thereof.

The appointment of all employés on the line of the road, not herein provided for, and the defining of their powers and duties, is hereby vested in the General Superintendent.

The heads of the departments shall be held responsible for the good conduct of all employés in their respective departments, and shall have the power of dismissal when they think it for the interest of the company, reporting immediately the cause thereof to the board.

So much has been quoted because this organization fixes the form and states many principles of the company; it remains in the main necessary, in further statements, to note the changes which have come by the development of this organization, although at least one new and most important principle does not here appear.

The changes by the organization of 1869 and 1870 may be noted together. There are four vice-presidents; the first charged with relations with connecting lines; the second in charge of accounts; the third charged with finances of purchased and controlled lines; the fourth in charge of engineering questions.[15]

The Engineering Department is established as an independent one in charge of a Chief Engineer of Construction and Consulting Engineer of the Pennsylvania Railroad, located at Philadelphia.

The Engineer of Maintenance of Way remains as assistant to the General Superintendent, and is aided by five resident engineers, one on each division of the road. It is not stated, however, what are the relations of these assistants to the division superintendents. There is also appointed a Superintendent of Transportation responsible to the General Superintendent; a General Solicitor, as an independent officer, in charge of the Legal Department; and two "general agents" at, respectively, Pittsburgh and Philadelphia, responsible to both the General Superintendent and the First Vice-President.

In 1872, 1873 and 1874, the office of General Manager was created and defined.[16]

As defined by the organization of 1874, this officer is responsible to the Fourth Vice-President, who for the first time assumes control of both

[15] The number and duties of vice presidents underwent recurrent change for a quarter of a century or more. However, the numbering of these offices until 1912 corresponded to seniority rather than to duties. Burgess and Kennedy, *Centennial History*, p. 794. Duties seem to have been grouped to fit the person available for the rank, rather than vice versa.

[16] The office of general manager, unifying operational control for all lines east of Pittsburgh and Erie, was established December, 1871, with A. J. Cassatt, later president, as first incumbent. Wilson, *History of the Pennsylvania*, vol. II, p. 19.

transportation and rates, no change we have noted involving a more important principle. Previous to 1878, except the President (taxed with a multitude of duties) no office of the company found its ambition and *principal* duty in earning not a revenue merely, but a profit, by rates.[17] However it may have previously been on the Pennsylvania Railroad, it certainly would not be untrue of the entire country, to claim that rates were made by those who did not control and were not responsible for expenses of transportation.[18]

Freight business cannot be conducted by a rule demanding a profit in every transaction; but to allow the entire business to be pushed to competitive prices by those who took no note of cost, and whose fixed ambition and attention was prejudiced by considerations involving "the future," was certainly an error. So far as the Pennsylvania road alone acted, this may not have been an important matter, since the policy of consultation was a check on all departments; but indirectly, as one of many roads, the Pennsylvania suffered from this undisciplined "hopefulness" which it, perhaps, was the first to correct formally. All wise things are not done of purpose; but nevertheless the soundest principles, on this as on other occasions, were incorporated into the organization by accidents of circumstance about which it is difficult to say whether the occasion only served a purpose, or a purpose took advantage of an occasion.

This remark is applicable to several facts of this period, as that the Purchasing Agent became an independent officer under the President, reporting to the Committee on Supplies of the Board, although consulting the General Manager on all purchases as matters of his department; and that a real estate officer (an experienced chief engineer of the company) was placed in charge of real-estate affairs. We pass over the detailed features of the organizations of these years, and of 1881, in order to describe fully the similar but more complete organization of the present year.

II

ORGANIZATION OF 1882

The President is Chairman of the Board, which is divided into the following standing committees, namely: On Finance, On the Road, On Real Estate, On Incidental Business, On Supplies, On Insurance; of each of which the President (and any Vice-President who attends) is *ex officio* a member.

The administrative duties of the road, its branches, and as involving connecting roads, are distributed as follows: the General Office, the Trans-

[17] The date "1878" is possibly a misprint. The *Organization* of June, 1873, placed the general manager in charge of Passenger and Freight Departments as well as of Transportation. In the following year this combination of duties accompanied Cassatt up the ladder to a vice presidency, leaving only Transportation in the hands of Frank Thomson, the new general manager. By the late 1890's traffic had been divorced again from transportation, in the hands of a separate vice president. Wilson, *History of the Pennsylvania*, vol. II, pp. 43ff.

[18] The absence of coordination between rate-making and the costs of doing business deserves the attention of historians interested in the rate wars of the period. It was a matter of frequent comment in the railway press. But perhaps conditions bordering upon anarchy within many freight and passenger departments were more troublesome.

portation Department, Supply Department, Real Estate Department, Accounting Department, Treasury Department, Legal Department, and agencies for special objects.

General Office.

The President has general direction and supervision of all departments, and is aided by an Assistant to the President.

The *First Vice-President* has general supervision of all matters pertaining to the financial condition of the Company, and is charged with general supervision of the Treasurer's and the Controller's Departments. The nominations of clerks in these departments are confirmed by him, and he may at any time direct the discharge of any officer in them, if, in his judgment, required by the interests of the company. In the absence of the President he acts as President.

The *Second Vice-President* has, through the General Manager, general supervision of the Transportation Department, and through the Passenger and Freight Agents and the Empire Line the control of rates.

He has special charge of those relations with competing companies and connecting lines associated with the performance of this duty.

He exercises special supervision over receipts and disbursements of lines owned, operated, or controlled by the company, east of Pittsburgh and Erie; and he aids the President in all matters relating to roads in which the company holds an interest.

The *Third Vice-President* has general charge of construction and of the promotion and construction of all new lines in which the company may become interested; plans, estimates and contracts for such work being submitted by him to the President.

The *Fourth Vice-President* exercises special supervision over the receipts and the disbursements, and assists the President in matters connected with the operation and the management of those railroads west of Pittsburgh directly or indirectly controlled by the company.

The *Assistant to the President* gives attention to the corporate organizations of branch lines in New Jersey and to duties in connection with the local interests of the company within the city of Philadelphia.

The *Treasurer* keeps the accounts of all funds that may pass into his hands, and has charge of all funds deposited in banks or other places of deposit designated by the Board. He signs all checks or delegates this duty to the Assistant Treasurer, pays all vouchers which have been duly certified to and approved for payment by the Controller, or such other officer of the Controller's department as the President or the Board may have designated, having been examined and registered by the Auditor of Disbursements or his Assistant, whose approval is endorsed thereon. Expenditures for dividends and interest, and other expenditures directed by the Board, do not require this endorsement. The Treasurer has authority, subject to approval of the President or the First Vice-President, to appoint a Cashier of the Empire Line, and such bookkeepers, clerks and bank messengers as are necessary for his department.

The *Secretary* keeps a record of proceedings of the Board, cancels certificates and registers all certificates of stock, and signs all bills of the General expense account which have been duly approved, and the gene-

ral expense pay rolls. He has custody of the originals of all contracts, agreements, and of all other valuable papers. He has charge of the general office buildings, repairs, purchases, and employés necessary thereto, except the Treasurer's bank messengers. He is aided by the Assistant Secretary.

Transportation Department.

The *General Manager* is in charge. He has authority (with the approval of the President) to order, through the Supply Department, machinery and tools for repairs of rolling and floating stock, machinery and roadway, and for all other purposes of his department, special contracts requiring the sanction of the President of the Board.

With the assent of the President, he nominates for confirmation by the Board suitable persons for the offices of his department, including station agents of the road and its connections, and may direct the removal or suspension of the same at his discretion, or upon order of the President; but he shall in all cases report to the Board the reason for such dismissals.

He defines in detail the duties of all subordinate officers and agents in his departments [*sic*], subject to the approval of the President. He keeps the President and Board fully advised of all occurrences and transactions of importance in connection with his department, and advises the vice-presidents of all matters affecting their respective departments.

The General Manager is assisted by a Chief Engineer, a General Superintendent of Motive Power, and a Superintendent of Transportation, who may be said to form his staff. The roads and canals owned and operated by the company are divided into three principal divisions, each in charge of a General Superintendent, reporting to the General Manager.[19]

The Pennsylvania Railroad Division consists of the Main Line and branches from Philadelphia to Pittsburgh.

The United Railroads of New Jersey Division consists of leased and operated roads in New Jersey, including the Philadelphia & Trenton Railroad, the Connecting Railway and branches of the Ferry and the Delaware & Raritan Canal.

The Philadelphia & Erie Division consists of the Philadelphia & Erie Railroad, leased lines and branches.

The *Chief Engineer* acts as assistant to the General Manager in matters connected with maintenance of way so far as standards and new construction are concerned.

Under the General Manager, he has the direction of construction work and charge of a corps of constructing engineers.

He is assisted by an Engineer of Bridges, and who has also the special duty to make periodical examinations of all the bridges on the several roads, reporting their condition through the Chief Engineer, to the General Manager and the respective general superintendents.

The Chief Engineer as a matter of custom has charge of the purchase of ties for the divisions of the roads which are deficient in wooded country, and the distribution of ties between the several divisions, acting as regards maintenance of way materials as the General Superintendent of Motive Power in regard to shop materials.

[19] These three "grand divisions" were described as early as the *Organization* of 1873.

The *General Superintendent* of Motive Power has supervision and control of the standards of the Motive Power Department. He keeps records of the numbers and conditions of the locomotives, cars, floating equipment and machinery owned by the company upon its own road and upon leased and controlled lines, the general superintendents reporting to him such facts as he may require for this purpose.

He has charge of tests and experiments, of the record of all patents owned or purchased by the company, and the dissemination of information concerning the rights of the company therein. It is his duty to make suggestions to the respective general superintendents as he may deem necessary for the efficiency and the economy of the service.

By his relation to the shops at Altoona, the office of Superintendent of Motive Power for the Pennsylvania Railroad [Division] becomes the most important one of the road, having supervision over standard forms of construction in the shops of several divisions and roads, distribution of material to these and a certain oversight over their accounts. A general superintendent of motive power for the system was in fact already developed before the formal establishment of the office (1882).[29]

The Superintendent of Motive Power for each division has immediate relations with the heads of the shops, and retains the details of distribution of materials and of supervision over shop accounts of the division. These accounts on each division of the road are now reported to a chief clerk of accounts. The General Superintendent of Motive Power has charge of tests, of the drawing rooms and offices of the Mechanical Engineer, and retains a Motive Power Chief Clerk, who, however, no longer receives detailed reports.

There are meetings of superintendents of motive power at his office, which replace in some measure formal reports.

The *Superintendent of Transportation* has charge of the distribution of the car equipment; he keeps record of all cars belonging to the company, and an account of the amounts due it for the use of its cars on foreign roads and due to foreign roads for the use of their cars on the roads of the company, and the settlement of such accounts. It is his duty to see that the cars of the company perform the fullest possible service both as to loading and continuous use.

The *General Superintendents* are responsible for the maintenance of track, for the proper discipline of employés, for the safe and economical movement of freight and passenger traffic, and for the maintenance of efficient service on their respective divisions.

They nominate to the General Manager, for submission by him to the Board, proper persons for the various offices on their divisions, including station agencies. They have charge of the company's real estate and personal property on their respective divisions, including shops, depots and other buildings, rolling and floating stock, etc.

Each General Superintendent is assisted by a Superintendent of Motive Power and an Engineer of Maintenance of Way.

[29] The allusion is probably to the facts that the headquarters of the Motive Power Department were located at Altoona, where there was the principal manufactory of engines and cars for the entire system, and that the superintendent of that department for the Pennsylvania grand division for many years filled the same office on the New Jersey division. What happened in 1882 was another case of assigning duties to the same individual at a higher rank.

Practically the duties, or at least those more important to the company, of the General Superintendent, are constant supervision rather than independent direction. They strengthen the organization and form an available corps of experienced general officers from which the highest positions of the company are filled.

One quality of the Pennsylvania Railroad Company as an organization is strength, that is to say, such a division of duty and responsibility as enables it to use the ability of all its officers without dependence upon any one of them. Every part of the organization exhibits an intelligence in its practical working out which comes, and can come, only from the untrammeled activity of a number of minds. This is the secret of that perfection and thoroughness of detail everywhere shown in the operation of the road.

We have spoken of the third President, J. Edgar Thomson, as the organizer of the company; this we have inferred from the study of certain facts; but while this may be true as regards that informal part of the organization which is felt rather than anywhere clearly defined, we must regard the formal organization of the road as due to the activity of many judgments influenced by practical experience, not only in several departments, but in the working together of these as an association. What may be called the policy of the road as regards all of its officers (to which we have already referred) has resulted in its present organization; this has not been the creation of any one, two, or even of few minds.

Superintendents of Motive Power have charge of the machine and car shops and of the maintenance and repair of locomotives, cars, floating stock, etc. on their divisions.

Each is assisted in the machine shop by a Master Mechanic and in each car shop by a Foreman of Car Repairs, but orders referring to shop discipline, increase or decrease of force, changes in rates of wages, are transmitted through the Division Superintendent.

Engineers of Maintenance of Way have their duties defined by their title.

AUTHOR'S NOTE. The ensuing account of the duties of division superintendents is prefaced by a summary statement of the seventeen "sub-divisions" into which the three major division (pp. 168–169) are divided, each of which is in charge of a division superintendent.

Division Superintendents exercise all the powers of the general superintendents necessary for the proper management of their divisions, and are responsible for the maintenance of track, the safe movement of trains and the proper transaction of business thereon.

In the sense of subordinate activity the division superintendent is an active executive officer; the General Superintendent a supervisory officer — at least so we infer.

This distinction is noted in order to show the practical working out of the organization.

The Pennsylvania Railroad Company, it should be clearly understood, is not merely an organization in form, but in fact: requiring supervision rather than constant direction and interference as regards all subordinate operations.

Necessarily, many duties and offices are not clearly defined as to their

limits, but here the informal part — i.e., the customs and traditionary spirit of the organization — makes up for definite limitations.

Our meaning may be illustrated by the remarks of a gentleman now high in office in the road to a youthful subordinate:

> **Young man, you will discover that *I* can do very little on this road, but *we* can accomplish almost everything.**

Assistant Engineers.

Each Division Superintendent has assigned to his division an Assistant Engineer in special charge of the maintenance of the road-bed, culverts, bridges, track and buildings, and of matters pertaining to the maintenance of way, and who acts under his direction and is responsible to him for the performance of these duties and for the condition of the road.

It will be observed that there has been a radical change of principle in this respect since the first organization of the road. This change probably began with the organization of 1862, but when formally made we are not able to state.[21]

It will be observed that the Pennsylvania Railroad Company is organized both by departments and territorily [*sic*].

This system has grown out of the experience of many years, and at times has left the limits of some offices quite undefined. The organization of the present, however, does away with this indefiniteness.[22]

The present working corps may be likened to an army, with a President as Commander-in-Chief, a Lieutenant-General (or secretary of War, if the comparison be preferred), a General in the field commanding, major-generals of divisions, brigadier-generals of brigades, and colonels of regiments, each of these officers having a personal staff. The various officers of staff have relations to one another not found in an army. The organization cannot be said to be military, except as regards a certain form. In fact, it can not be likened with exactness to any other type of organization. Its *esprit de corps* separates it from other organizations. There is a freedom for suggestion and mutual consultation and for independence of action not found in an army; and which did it not exist in a railroad organization would result in a species of "red tape," destructive to all proper conduct of business. Nevertheless, as is well known, the Pennsylvania Railroad possesses a uniformity of methods and a discipline in operation which makes it in fact as well as in form, on all its various branches, one united system of control and of standard forms, both in its machines and in its operations.

THE FREIGHT AND PASSENGER DEPARTMENTS

These remarks may be illustrated by the methods in which rates are fixed and maintained. (We prefer the preposition "in" as indicating the fixed facts of organization rather than the direct control by individual will.) The staff of the Second Vice-President, as regards rates, may be considered to be the General Passenger Agent and the General Freight

[21] This date is certainly incorrect, and the error arises from the lack of clarity of which the author has complained. The *Organization* of 1863, for instance, vested Maintenance of Way in a chief engineer, assisted by three resident engineers.

[22] Cf. pp. 168–170, and "Historical Development," pp. 8–9.

Agent. The general supervision of the President always understood, this part or committee of the organization fix the rates. Station and foreign agents receive instructions in all matters pertaining to the receiving and forwarding of freights from the General Freight Agent. The station agents, however, belong to the General Manager's department. The Auditor of Freight Receipts is an officer of the Accounting Department under the Comptroller and First Vice-President; but the maintenance of rates by the local agent depends upon his action through the General Manager.

We shall not in this place enter upon a detailed description of the admirable method of freight and passenger accounts.

III

We may further illustrate the relation of staff officers by the duties and influence in favor of economy of consumption of materials of the General Superintendent of Motive Power.[23] This officer belongs to the General Manager's staff; under his supervision accumulated materials are property distributed to the various shops, and through the shop accounts reported to him. He exercises an "economical influence" upon the use of construction materials, and materials used in the operation of the road. His formal relations are with the General Superintendents on the one hand and the General Manager upon the other; but in the practical working out of the organization his relations with subordinate officers of divisions and with the Purchasing Agent can become direct. In general, however, orders for materials are, we believe, made by the division superintendents.

The Purchasing Agent, however, consults the General Manager on all purchases for his department.

We shall not enter this time into the details of other departments, but shall attempt to give some statement of what we have termed the informal part of the organization.

No portion of the task undertaken is more difficult for an individual speaking from a study of facts and not from experience of any kind on the road. Nevertheless, we believe the following to be not misleading as to the essential spirit of the Pennsylvania Railroad Company's methods.

To begin at the beginning, no organization can be established by printing a document, appointing officers, or by any other method than that of practical self-restraint on the part of those in power.[24] Many attempted and beautiful schemes of organization fail because the head or heads controlling the same are too anxious for that peculiar self-consciousness of power which comes only through direct executive interference. In other words, a good organization, as a fact, supposes its organizer to be content to divide his authority, at least so far as appearances are concerned; moreover, while a strong organization may exist under an autocrat, it can have no power of self-development which shall continue to exist after his death. For these reasons and in view of a variety of facts, we give the credit of that policy which has resulted in the Pennsylvania

[23] Here "staff" is clearly used in the context of a "line-and-staff" pattern as now understood.

[24] Executive self-restraint had been for a decade a principal theme of S. Wright Dunning as editor of the *Railroad Gazette*.

Railroad Company as now organized to its early officers. Always must we separate the intellect in all human affairs from those forces which are real and effective; and in this case we do not credit both to the same persons. It would be impossible to say, and we safely affirm that no one knows who created the Pennsylvania Railroad as a scheme of organization and a presentation of realized principles.

Like the British Constitution it has "grown" under the influence of many officers, but like the British Constitution, each item of principle has lived because there existed an indefinite but powerful set of examples or precedents copied as to spirit by officer from officer down to the present period.

In the first place, in the order of promotions, respect for the printed organization, resistance to outside influences which would place men in office on the ground of other considerations than those of trained and proved merit, and all those facts which make up the true company as an organized unity have come by a set of inherited official characters which exist in each department of the road because they have existed, and not because the road was organized upon a correct and beautiful plan.

The rule of custom as to promotions is that offices shall be filled by those trained in the company's service;[*] and so essential a part is this rule of the informal organization that subordinate positions are created partly that it may not occur that the material for any position shall fail.

We find everywhere assistant officers in training for position; but as a fact, training merely will not give position aside from merit. We do not assert that the Pennsylvania Railroad is composed of perfect individuals; but we do thoroughly believe that merit and training are the most potent of all influences in giving positions of every kind upon the road. Each officer promoted and leaving a vacancy has more influence than any other one person, except the mind which determines the nomination to the Board, in filling his recent position. All nominations reach the Board through the President, and are formally given his approval before any action can be taken upon them.

If the principle of filling all offices by those already in the service of the company were made an inflexible rule, it, in time, might result in great disadvantages; as a fact, this principle can and does admit of exceptions. Professor Huxley has said that the value of universities is the education of the few persons of genius who appear during a century, and that their machinery is worthy of support for this purpose alone; geniuses however, do not by any rule take advantage of the universities, but the universities are glad through titles to claim them as their own after they have shown their power. In like manner, a railroad which, like a country, needs to educate its officers, needs also some provision for getting its share of railroad ability which is born but not made.

As respects those influences upon promotions which naturally come through the road as a financial organization, we have the strong proof of

[*] Support for this rule was also formal. As early as the *Rules and Regulations for the Government of the Transportation Department of 1864* it had been flatly stated, article 7: "Employees of every grade, will be considered in line of promotion, dependent upon the faithful discharge of duty, qualifications, and capacity for assuming increased responsibilities."

fact to substantiate our statement that they are inadequate to place in position any officer who does not possess fitness. The strength of the organization allows of individuals in position where hopefulness for the future rather than proved and tried experience has determined appointment; but reasons for this appointment exist in the policy of the road. The Pennsylvania Railroad has an individuality of method and official conduct which is more easily taken on a young and less experienced mind than by men already trained in other types of organization. In saying this it should be understood that we claim no superiority for that plan of organization existing as the Pennsylvania Railroad Company. Its excellence is that it has grown out of the fact of its own individual conditions and is admirably fitted and adjusted to these. It has been said that there is no "true form" of government, simply because the excellence of any form depends upon the requirements needed to give order and stability of life to those who are governed. The one bad type of government and organization is that which either for want of power, or by reason of unlimited personal power, can have no progressive development necessary to the well-being of those governed. The bad and poor type of railroad organization is that one alone which does not fit nor develope [*sic*] to the changing facts of the road. We ask pardon for so much statement, but our boldness needs the temper of discretion, as we are perhaps too anxious to convince the reader. There is another informal tradition which we discover in the facts of appointments and which modifies others of which we have spoken.

An exaggeration is possible, in technically qualified minds, of the value of single qualities or sets of qualities as developed by training. All positions of importance involve a kind of ability in their proper performance which only a man of general rather than special and one-sided view of life develops, namely, ability to get on with, submit to, and to control human beings. We judge it to be the experience of this great road that no special training or ability will fit a man for office who has not that balance of character and general interest in life which enables him to get on with all varieties and conditions of men, and at the same time carry out the rules of the organization;[*] especially this one, that interference is uncalled for, exercise of authority and correction of mistakes by subordinates needing only the usual and ordinary machinery. To speak definitely, no officer without that self-control which enables him to work through the regular lines of authority can gain any position upon this road, unless we are mistaken in facts which alone are our authority.

This valuing of general rather than special ability we believe to be a marked feature of the road. No company exaggerating training and experience to the theoretical degree, to which the German mind is especially prone, could repeat, as to its important facts, the history of the Pennsylvania Railroad as to appointments and elections. One of the most admirable features of this informal organization of which we are speaking is this balance of principle against principle, which impresses the mind as the result of genius; but which, as a fact, is merely the result

[*] Personality requirements for promotion to an official position were frequently mentioned in the 1880's in the context of personnel policy. But I have not found so explicit a formulation of the conception of an "organization man," quite free from the current, invidious connotations of that term.

of the untrammeled and interested activity of a large number of individual men, living and dead. On every side the Pennsylvania Railroad would be weak by excess were it not on the opposite side strong.

It remains only to speak of the President of this great organization, and in relation to him of those outlying organizations which only through him form a unit of control with the Pennsylvania Railroad Company. The responsibilities and duties of this officer are almost too great to be borne by any one man who desires faithfully to fulfil them and not die an early death. What may be the facts we do not know, but there is reason to believe that the vice-presidents of so great an organization need and have a freedom of initiative and independent action which might be unnecessary in smaller companies. As regards the mere details of present interests, aside from extensions, the labor falling upon the President must be enormous considering its character and quality — namely, a series of decisions.

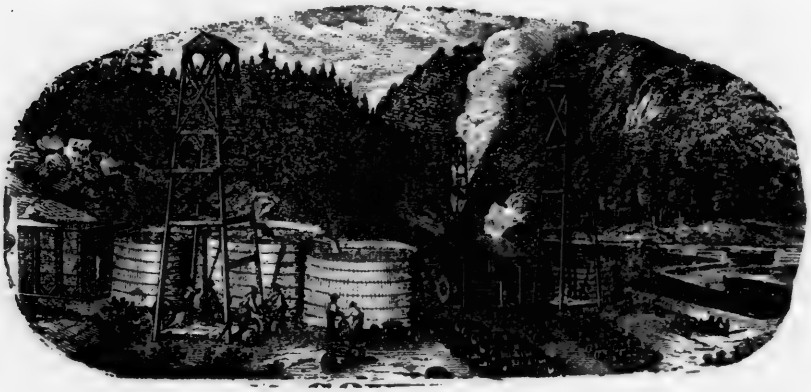
The Pennsylvania Company, operating the lines west of Pittsburgh controlled by the Pennsylvania Railroad Company, is governed by an Executive Committee, of which the First Vice-President is chairman, but which is responsible in fact to the President of the Pennsylvania Railroad Company.[27] It is not our purpose to enter into the details of the duties of this committee, nor of the Third and Fourth Vice-Presidents of the Pennsylvania Railroad Company as regards the practical operation of these lines. It is sufficient to observe that their gross receipts approach those of the combined older lines operated directly by the Pennsylvania Railroad Company.

Should opportunity allow, the features of other organizations will be studied with the same purpose for which this study has been made, namely, to give those lacking the time for such investigation, especially younger men, some of the facts concerning existing organizations.[28] In this work, which to a very limited extent has been attempted for several roads, opportunity has been taken to obtain the views of those whose long experience, position and capacity enabled them to speak with authority about railroad questions. Embodied in this account of the Pennsylvania Railroad Company are the views of those whose experience has been gathered upon other roads; and in the expressions of these views we have taken occasion to examine the facts found in the documents relating to our subject. We have not, however, found any officer able to speak for the Pennsylvania Railroad as an organization; but the views expressed have a basis in the practical working facts and views existing in many, very many minds.

This paper is specially indebted, however, to the library of the Historical Society of Pennsylvania, an institution in which railroads should take greater interest, as it already possesses documents growing greater in value with the passing away of years and men.

[27] This president was also president of the Pennsylvania Company, which otherwise had a wholly different set of officials. The operative organization of the Pennsylvania Company, including an analysis of the significant role of the executive committee, was treated in "The Relations of the Pennsylvania Railroad Company to Other Organizations in which it holds an interest," *Railroad Gazette*, vol. 15 (1883), pp. 45–46. This article is to appear in a subsequent issue of the *Business History Review*.

[28] See page 162 and foot notes 31–34.



Integration Into Crude Oil Transportation in the 1930's

A Case Study: The Standard Oil Co. (Ohio) *

This searching probe goes beneath the common generalizations about integration to reveal in detail the causes, techniques, and results, not only as they relate to costs but also to problems of competitive strategy and over-all administration.

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The Premise

The Standard Oil Co. (Ohio) is today one of the 25 or 30 largest "fully integrated" oil companies. This term, in oil industry parlance, generally applies to those companies

* This article is in part the condensation of a portion of a much longer and more detailed paper on Sohio's integration, which was based largely on company records. The original work was done for John G. McLean and Robert W. Haigh for whom I was research assistant throughout the course of their study which culminated in *The Growth of Integrated Oil Companies*, published by the Harvard Business School's Division of Research in 1954. The present version differs from the original study in that it incorporates the author's own thinking on the subject, particularly in the premise and the conclusion, for which I assume full responsibility.

operating or owning facilities and properties for performing the four main functions of the oil business, i.e., producing, transporting, refining, and marketing of crude oil and its products. Many fully integrated concerns also engage in countless other activities directly or indirectly related to one or more of the four primary functions.

The allowable quantity of crude oil that can be produced from a well during a specific time period (usually a month) is limited by state regulation in many oil-producing areas. Consequently, a fully integrated concern owning producing wells in Texas, for example, may be prevented from obtaining a sufficient oil supply from such wells to insure a continuous flow to its refineries in order to meet the latter's needs. Most of the present-day large refineries, moreover, are not located in or near the producing fields from which they receive the major portion of their crude oil supply. Hence, in addition to operating their own producing facilities, many fully integrated companies must purchase crude oil from other oil companies or producers. Similarly, when integrated companies have an oversupply of crude oil, they generally sell it to some other company or refiner. Likewise, the transportation facilities of a fully integrated firm, such as its pipelines, frequently are used not only for delivery of the company's crude oil to its refineries, but for transporting crude oil of other companies.[1] And just as an integrated concern may have to purchase or sell crude oil at times, it may also have to purchase gasoline to fulfill its marketing commitments, or sell its excess supply of gasoline [2] to some other marketer or distributor.

Most large fully integrated oil companies thus not only perform themselves or own facilities for producing, transporting, refining, and marketing crude oil and products, but in addition engage in the purchase or sale of crude oil as well as of products, the transportation of such products for others, and in some instances even refine crudes for other companies. The distribution of gasoline from refinery to its ultimate market in the case of the large integrated concerns is usually via pipeline direct to storage terminals near large consuming centers. From this point on, however, distribution varies. Many integrated concerns employ jobbers to distribute to retailers, particularly in remote areas, while others have their own storage facilities and perform distribution to retailers themselves. But since the large integrated companies and many other marketers

[1] Under the Hepburn Act of 1906, all interstate oil pipelines engaged in the business of transporting oil were placed under the jurisdiction of the Interstate Commerce Commission. Such pipelines were required to accept for transport the oil of other companies not owning pipelines. 34 Stat. 584. See also *The Pipe Line Cases*, 234 U. S. 548 (1914).

[2] The storage of gasoline on a large scale is expensive and extremely hazardous.

of gasoline have their own exclusive brands which are well advertised and highly competitive, their marketing policies and methods generally are under the direction of top management officials.

In these respects the management of integrated oil companies is unique. Moreover, competition is manifest at each level of operation, not only between the fully integrated companies, but among fully integrated, partly integrated, and nonintegrated concerns engaged in similar functions. No fully integrated oil company can thus depend wholly or exclusively on its own facilities to furnish a continuous flow of crude oil from oil fields to its refineries so that the latter can always be operated at the most economic rate of output and yet provide an adequate supply of gasoline to fulfill market demands at all times. The executives of a fully integrated oil company accordingly must assume the dual role of managing the company's own producing, transporting, refining, and marketing facilities, and at the same time of negotiating with other firms to perform the same functions for them.

By their very nature such dual activities on the part of managements of integrated oil firms by no means lessen competition, nor do they *per se* ensure better profits. On the contrary, competition is keen, and profits depend on management's judgment, know-how, and efficiency in carrying out their multiple responsibilities.

Introduction

This article first portrays the need for integration by the Standard Oil Co. (Ohio) and then traces the major integrational steps which took place during the 1930's. Prior to that time, the company was a refiner-marketer of gasoline and products principally within the confines of Ohio.

New company management, installed in 1928, was convinced that integration of the company's crude oil transportation and purchasing operations was necessary if the company was to survive the intense competition of that period. Integration into crude oil producing was also desirable. But before any integrational steps could be taken there were critical problems to be overcome, particularly regarding the company's market position. It was not until 1930, therefore, that the new management could take initial steps toward integration.

The problems confronted by the new management reflect clearly the many complexities of the oil business during the early 1930's. No other known case, studied in historical depth, provides so good

an example of the need and importance of backward integration by a refiner-marketer of gasoline during the decade of the 1930's.

The Oil Industry in 1929

The economic trend of the oil industry up to 1929 and the situation as of that date are revealed in the following statements of Joseph E. Pogue.[3]

> **For several decades prior to 1911, the outstanding feature of the petroleum industry was a trend toward integration, culminating in a huge combine, the Standard Oil Co. An important aspect of this integrative trend, however, was its concentration upon a combination and control of refining and marketing, leaving crude oil production, for the most part, to the exigencies of small-unit competition. . . .**
>
> **But the idea of superintegration, despite its efficiencies, became repugnant to the temper of the times and so the Standard Oil Co. was dissolved by court decree – disintegrated into over 30 parts. And thus, in 1911, was ushered in the second era of the petroleum industry, a period of intense competition. This era coincided with the development of automotive transportation, and a tremendous growth resulted in the effort to keep pace with the mounting demand for gasoline. An intense individualism and unbridled competition were appropriate to this period of entry into the gasoline age. . . .**
>
> **During this second period . . . it appeared that the supply of oil might fall short and so a "shortage idea" was born, which brought the larger companies hurrying into the field of production . . . to assure themselves of an owned reserve of crude oil. . . . The supply of crude oil gained such impetus that new economic forces have been generated which are now carrying the petroleum industry into its third stage, marked by a return toward integration and control, as opposed to disorganized competition. It has become apparent, in short, that supply left to competitive forces alone results in chronic overproduction and, therefore, the manner of conducting the business must necessarily undergo a change to eliminate this flaw from an activity otherwise sound in its attainments and prospects. It is precisely the remedy of this defect that constitutes the major problem before the industry today. . . .**

Company Background

The Standard Oil Co. (Ohio), organized in 1870 by John D. Rockefeller, grew enormously under his active leadership. Thus, by 1882, this company held in trust the corporate stock of some 84 companies engaged in one or more activities of the oil business.

[3] Excerpts from a paper presented by Pogue before the Tulsa meeting of the American Institute of Mining and Metallurgical Engineers as reported in the *Oil and Gas Journal*, Oct. 10, 1929, p. 138.

But in that year, the Supreme Court of Ohio, having decided that operation of such a trust was beyond the corporate powers of the Standard Oil Co. (Ohio), ordered the company to cease its connection with the trust. Discontinuance of the trust, however, did not cause disintegration of Standard Oil interests, for the separate establishments and plants that had formerly composed the trust were reorganized into "20 constituent companies," [4] of which the Standard Oil Co. (Ohio) was one. In 1899, when the Standard Oil Co. (N.J.), also one of the 20 constituent companies, was reincorporated under the newly enacted holding company law of that state, most of the properties and assets of the former 20 constituent companies were transferred to it. Accordingly, the Standard Oil Co. (Ohio) became for about a decade one of the numerous subsidiaries of the Standard Oil Co. (N.J.).

In 1911, however, the Standard Oil Co. (Ohio) was completely severed from its parent along with 32 other companies by order of the Supreme Court of the United States.[5] It thus became an unrelated corporate entity again, continuing to operate under its original charter as an Ohio corporation. By decree of the United States Supreme Court, furthermore, the Standard Oil Co. (Ohio) was granted exclusive rights within that state alone to use the Standard Oil name, brands, and trade-marks.

From 1911 to 1928, Ohio Standard continued as a marketer and small refiner of gasoline and products. Until 1921 it had only one refinery, located in Cleveland, the company's principal place of business. In that year a larger refinery having a capacity of 19,000 barrels a day was completed at Toledo, but by 1923 it had become obsolete because of rapidly changing techniques in the cracking of gasoline. After several years of experimenting, the company finally developed its own tube and tank continuous cracking process, which was installed at its Cleveland and Toledo refineries by the end of 1927. By 1928, the combined capacity of the company's plants was 30,000 barrels a day.

Standard of Ohio's owned marketing outlets consisted of about 1,000 service and bulk stations in 1928. Because of its inability to meet competitive prices, however, it had experienced since 1926 a decline in its percentage share of the Ohio gasoline market. For many years the company had been the principal marketer of gasoline in Ohio with little competition from other major oil companies. But during the early 1920's, numerous other oil companies had

[4] John Moody, *The Truth About the Trusts* (New York, 1904), p. 124.
[5] *Standard Oil Co. of New Jersey v. United States*. 221 U. S. 1, 31 Supreme Court 502 (1911).

entered the Ohio market, including such majors as Gulf, Pure, Sinclair, Sun, and The Texas Company that were fully integrated. Competition was unbridled and prices were lowered, but Ohio Standard continued to set its prices on the basis of costs. As a result the economic situation of Ohio Standard became so precarious that, in the early part of 1928, a change of management was effectuated involving the installation of a new president, a new vice president in charge of sales, a new sales manager, and various other new department heads. At the same time a new board of directors was appointed.

The new management was immediately faced with several critical problems of which the most urgent was the company's loss of gallonage in the Ohio market. While in 1926 the company's percentage share of the Ohio market had amounted to 37 per cent, by the end of 1927 it had declined to only 18 per cent. The new managers, recognizing that prices should be determined not by costs but by the market,[6] issued orders "to meet any competitive price." Their objective was to increase sales by meeting competitive prices and ultimately to lower unit costs through a program of modernization and efficiency in distribution methods and facilities.

Fortunately, the company had a new product which greatly helped in stimulating sales at this crucial time. This was its high-quality Sohio-Ethyl gasoline produced by the new tube and tank cracking coils installed in 1927. An extensive advertising campaign for this premium gasoline was carried out in 1928. These and other changes resulted in considerable increase in the company's total sales volume. Hence, by the end of 1928, the company's percentage share of the total Ohio gasoline market had risen to 25 per cent. Moreover, the company was not only able to meet competitive prices on both its regular and premium grades of gasoline, but it obtained a 3-cent premium [7] on more than half its sales, which were of the new Sohio-Ethyl gasoline. In addition, the increase in crude oil runs through the company's refineries to meet the greater demand for the company's gasoline in 1928 caused a reduction in the company's average cost per gallon.

By the close of 1928, the company was in need of additional refining capacity to meet the increased demand for its gasoline. Accordingly, in December a skimming plant at Latonia, Kentucky, was purchased, the plant being within railroad switching limits of

[6] For a detailed description of the company's price policies during this and later periods see E. P. Learned and C. C. Ellsworth, *Gasoline Pricing in Ohio*, published by Division of Research, Harvard Business School, 1959.

[7] The company both owned and operated a considerable number of retail gasoline service stations selling its products.

Cincinnati. With alterations and realignment, it was ascertained that the Latonia plant could be made into a modern, efficient unit capable of producing 8,000 barrels a day of products at a total cost, including original purchase price and improvements, far below that of constructing a new refinery. Although the plant had been closed for some time for lack of a crude oil supply, officials of Ohio Standard learned that the Illinois Pipe Line Company was willing to construct a new 100-mile branch from its main line in Indiana to Latonia, Kentucky, which would make it possible for Mid-Continent crude oil to be transported directly to the refinery there.

While purchase of the Latonia refinery would, in the opinion of company executives, alleviate to some extent another serious problem, that of crude oil supply, the price of Mid-Continent crude was extraordinarily high. Between 1926 and 1927 the decline in the average well price of crude oil had been precipitous, falling from $2.10 a barrel in 1926 to $1.35 in 1927. In 1928 it declined to $1.29. These price reductions at the well resulted from an oversupply of crude. Even as early as 1923 in the Los Angeles area, the excess supply of crude oil had caused reductions in finished product prices of major oil companies in the East. The large crude oil purchasing companies in the Mid-Continent, however, from which Ohio Standard obtained its main supply, ignored the price decline in the national market and held to their posted prices for crude. Ohio Standard was probably the only major oil company that continued during this period to adhere to a policy of paying the posted price for crude oil in the Mid-Continent. The large fully integrated oil companies selling gasoline in Ohio, however, enjoyed a differential position over Ohio Standard, since they had their own producing wells, and gathering and trunk pipelines. Thus, not only did Ohio Standard have to pay high posted prices for its crude oil at the well, but also high transportation costs.

The High Delivered Cost of Crude Oil from the Mid-Continent in 1929

The most important problem before the new management in 1929 was the company's disadvantageous position with respect to transportation of its crude oil. Every barrel of crude run through the company's refineries was obtained from intermediary companies that purchased and gathered crude from producers and then sold it to Ohio Standard. All but a very small percentage of this crude oil was purchased from the Prairie Oil and Gas Company and shipped

from Mid-Continent oil fields to Ohio Standard's refineries via the gathering and trunk lines of the Prairie Pipe Line Company and connecting pipeline carriers. The latter included the Illinois Pipe Line Company which operated a main line from Wood River, Illinois, across the states of Illinois, Indiana, and Ohio in a northeasterly direction to the Pennsylvania state line, with a branch running directly to Ohio Standard's Latonia refinery in Kentucky. The main section of the Illinois pipeline connected near Lima, Ohio, with the Buckeye pipeline, the latter extending across the northern section of Ohio with branches leading to Ohio Standard's refineries in Toledo and Cleveland.

The total cost of Oklahoma crude oil delivered at the company's Cleveland refinery in 1929 was exactly $1.00 a barrel above the Oklahoma well price. The history of the various pipeline and other transportation charges from the Mid-Continent oil fields to the company's Cleveland refinery is shown in Table I.

TABLE I

	Prior to 9/20/20	9/20/20 to 7/26/22	7/26/22 to 4/23/26	4/23/26 to 5/1/28
		(In cents per barrel of 42 gallons)		
Brokerage charge	10	10	10	10
Gathering charge	12	20	20	20
Main pipeline tariff	58	72½	63½	62½
	80	102½	93½	92½

SOURCE: Standard Oil Co. (Ohio): *Ajax Brief – Arguments for Reduction in Pipe Line and Other Transportation Rates On Crude Oil, April 20, 1933.*

These figures show that the total transportation charges paid by Ohio Standard in 1929 were greater by 12.5 cents a barrel, or 15.6 per cent, than in 1920. Moreover, the ratio of total transportation charges to well price increased by 27 per cent between 1926 and 1928, as revealed in Table II.

TABLE II

	Average Well Price of Crude Oil Per Barrel	Total Transportation (Gathering Commission & Main Pipeline)	Percentage Ratio of Transportation Charge to Well Price	Average Delivered Cost of Crude Oil at Ohio Refineries	Percentage Ratio of Transportation Charges to Total Delivered Cost
1926	$2.10	$0.91	43	$3.01	30
1927	1.35	0.91	67	2.26	40
1928	1.29	0.91	70	2.20	41

SOURCE: Standard Oil Co. (Ohio): *Ajax Brief – Arguments for Reduction in Pipe Line and Other Transportation Rates on Crude Oil, April 20, 1933.*

In addition, certain economic and other changes in the transportation of crude oil, which had taken place since 1911, affected Ohio Standard's costs of transportation of crude oil: [8]

> **When pipelines began to be used, the only important competition was rail transportation. Pipeline rates, therefore, were based upon rail rates; the pipelines were built as complements of an integrated oil business, under which conditions the "rates" established, so far as they applied to the owners' own operations, were matters of bookkeeping only. . . . The dissolution of the Standard Oil Co. (N.J.) created a situation in which the rates for a number of the refining and marketing companies ceased to be academic, but for various reasons, including the rigid dependence of these companies on existing sources of crude oil and transportation facilities, little change was made. A number of the companies affected, through other arrangements later worked out, escaped the effects of the existing structures – e.g., Standard Oil Company of Indiana, through acquisition of its own production, purchasing, and pipeline system. . . . The other major companies for the most part have their own pipeline systems, or, through having connecting lines and the like, are able to secure favorable "participations" in the total "official" rates which give them a reasonable cost for such outside transportation service as they require.**

Few oil companies were really concerned with, or actually paid, the posted pipeline tariffs. Ohio Standard was a notable exception. The position of the Standard Oil Co. (Ohio), insofar as its costs of transportation of crude oil were concerned, was therefore distinctly unfavorable both from an economic and competitive standpoint. There were several reasons, however, why Ohio Standard, unlike many of the other major oil companies, had made no progress in primary integration of its operations up to this time. According to a company memorandum, they were as follows: [9]

> **In the first place, it was one of the smaller major company units, and being relatively remote from the Mid-Continent sources of crude oil, entering into the crude oil purchasing, production, and transportation phases would have involved not only operating in an entirely different geographical sphere, but would have required a very large capital investment relative to the company's size – as, for example, to build a trunk pipeline from Oklahoma to Ohio. In the second place, and probably more important, was the apparent habit of the old management (consisting almost entirely of men who had been in charge of the same activities prior to the dissolution) of thinking of the company as merely a marketing and refining unit of a much larger whole, rather than as a new and separate entity in itself with a duty and responsibility of making the most of its opportunities.**

[8] Standard Oil Co. (Ohio); *Ajax Brief – Arguments for Reduction in Pipeline and Other Transportation Rates on Crude Oil, April 20, 1933.*
[9] Company Records: Memo Re 722 Claims by S. A. Swensrud.

The company's crude oil supply situation was further aggravated early in the summer of 1929 when a serious and wholly unexpected reduction was made in the quantities of crude oil available from its regular source of supply on account of limitations in the Prairie Pipe Line Company's capacity. Consequently, in order to obtain sufficient gasoline to meet the company's rapidly mounting sales, Ohio Standard had to purchase gasoline from other refiners. This situation occurred in the months of peak consumption of gasoline, so that the cost to Ohio Standard was substantially higher than if the gasoline had been produced in its own refineries.

Initial Steps in the Company's Integration, 1930–1934

In 1930 the Prairie Oil and Gas Company and its subsidiary, the Prairie Pipe Line Company, which for many years had constituted Ohio Standard's main source of supply and transportation of crude oil, were sold to Sinclair interests. This event led to Ohio Standard's first integrational step into crude oil transportation, the acquisition of a small interest in the Ajax Pipe Line Company.

The Ajax pipeline was essentially a project of the Standard Oil Co. (N.J.) to provide a northern outlet (The Midwest) for crude oil produced by its subsidiary, the Carter Oil Co., in Oklahoma, and also to supply certain of Jersey's refining subsidiaries in the northeast, particularly the refinery of Imperial Oil Limited at Sarnia, Ontario. Previously, Jersey's producing affiliates in the Mid-Continent area had shipped crude oil over the Prairie pipeline system which had one branch going to Wood River, Illinois, and another to Griffith, Indiana. But in 1930 the Standard Oil Co. (N.J.) decided to build its own line to Wood River and the Pure Oil Co. and the Standard Oil Co. (Ohio) agreed to join the Jersey company and its affiliates in the Ajax venture.

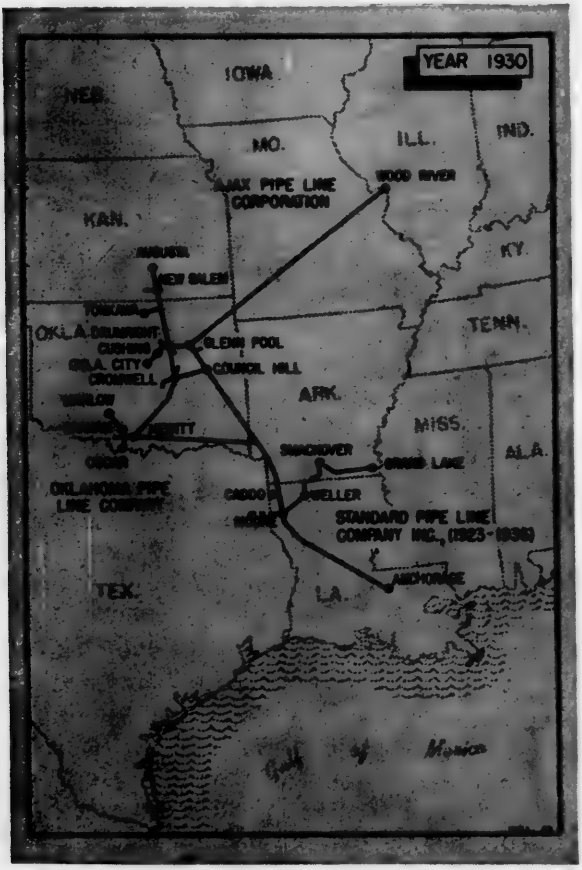
Ajax was the largest pipeline in length and capacity ever undertaken up to that time. Two separate parallel 10-inch lines with a normal 24-hour total capacity of 65,000 barrels would carry oil produced by Carter and gathered into the pipelines of the Oklahoma Pipe Line Company, another subsidiary of the Jersey company, via the Ajax line from Glenn Pool, near Tulsa, to Wood River, Illinois. At the latter point, connections could be made with other pipelines to carry Mid-Continent crude oil to refineries in the northern and eastern sections of the United States.

Construction of the Ajax pipeline was completed by the end of 1930, in record time, being the first major line to be built by modern

methods. It commenced delivery of oil to the Illinois Pipe Line Company at Wood River near the end of December, 1930. A map showing the gathering lines of the Oklahoma Pipe Line Company in Oklahoma and the route of the Ajax pipeline is shown in Exhibit

Exhibit 1

Map of Ajax Pipeline, 1930



Source: *The Liner* (Golden Anniversary Edition, 1959), Interstate Oil Pipe Line Company, p. 7.

1. As can be seen from the map, the Standard Oil Co. (N.J.) already had a southern outlet for crude oil produced by Carter via the Standard Pipe Line Company Inc., which carried Oklahoma crude to Anchorage, Louisiana, near the Baton Rouge refinery of the

Standard Oil Co. of Louisiana, another affiliate of Standard Oil Co. (N.J.).

The arrangements made by Ohio Standard for obtaining a part interest in the Ajax pipeline took the form of a rather complicated joint agreement between the three parties. According to the original agreement, dated December 20, 1930, the Ajax Pipe Line Company was formed as an operating company to which Standard Oil Co. (N.J.) loaned $12,051,961 for the construction of its line. This loan was to be paid with money borrowed by Ajax Pipe Line Company from Ajax Corporation, a holding company. Each of the three parties subscribed to shares of common stock in the Ajax Pipe Line Company as shown below:

	Shares	Per Cent
Standard Oil Co. (N.J.) (and/or its nominee subsidiaries)	1007.6	53
The Pure Oil Co.	461.6	24
The Standard Oil Co. (Ohio)	430.8	23
	1900.0	100

Shares of common stock in the Ajax Pipe Line Company were transferable for management shares in the Ajax Corporation according to certain rather involved conditions. Initially the Jersey affiliates held 40 per cent of the management shares of Ajax Corporation.

At approximately the same time that the agreement was executed between the three oil companies named above, another agreement was signed by Imperial Oil Limited, the Standard Oil Company of New Jersey (Incorporated in Delaware),[10] both affiliates of Standard Oil Co. (N.J.), the Pure Oil Company, the Standard Oil Co. (Ohio), and the Carter Oil Company whereby the latter would purchase and transport Oklahoma crude oil over the Ajax pipeline for a period of five years in the following amounts:

	Original Agreement 12/20/30 (Barrels Per Day)	Amended Agreement 6/10/31 (Barrels Per Day)
To the Standard Oil Co. (Ohio)	28,000	31,000
To the Pure Oil Co.	10,000	10,000
To Imperial Oil Ltd.	22,000	19,000
To Standard Oil Co. of New Jersey (Incorporated in Delaware)	5,000	5,000

In addition to various provisions as to increases or decreases in shares, amendments, selling any or all assets, and sale and disposi-

[10] Name later changed to Esso Standard Oil Company.

tion of stock, the agreement between the five parties contained the following stipulations which later were to cause considerable contention on the part of Ohio Standard.[11]

> **In the event that any of the above suppliers or buyers of crude *shall not*, on or before thirty (30) days prior to the expiration of said five-year period, make a written offer to its respective supplier or buyer under the aforesaid contracts to *renew its contract with said supplier or buyer for an additional period of five (5) years on the same terms and conditions as provided for the first five years, except that the daily number of barrels (42 gallon) to be supplied by Carter to and bought by the respective buyers under the renewal offer for the second five-year period shall, instead of the number specified above, be as set forth in Schedule B below*:**
>
> | | |
> |---|---|
> | **The Standard Oil Co. (Ohio)** | **26,000 bbls. (42 Gallon)** |
> | **The Pure Oil Co.** | **15,000 bbls. (42 Gallon)** |
> | **Imperial Oil Ltd.** | **19,000 bbls. (42 Gallon)** |
> | **Standard Oil Co. of New Jersey (Delaware)** | **5,000 bbls. (42 Gallon)** |
>
> ***then such supplier or buyer so failing to make such written offer shall surrender and assign to the holding corporation all of the common and management shares of the holding corporation then owned and held by it without payment therefore, such shares to be held by said corporation as treasury shares;* provided, however, that if any such supplier or buyer make a written offer on or before the aforesaid date to its respective buyer or supplier to supply or purchase, as the case may be, a lesser quantity of crude than is stipulated above in Schedule B, to be supplied or taken during such additional five-year period, then such buyer or supplier shall be permitted to retain such percentage of its common and management stock as the amount of crude which it is ready and willing to purchase or supply, as the case may be, in fairly even daily quantities during said additional five-year period, shall bear to the amount of crude specified in Schedule B for such supplier or buyer. . . .**
>
> **The preceding paragraph shall, insofar as Pure is concerned, be deemed to operate only with respect to 961 common shares and 30 management shares of the holding corporation, and insofar as Carter, Imperial and Standard Oil Co. of New Jersey (Delaware) are concerned, shall not be operative with respect to their holdings of the management shares of the corporation until such time as they, or any one or more of them, shall have transferred to the holding corporation and/or shall have become obligated to transfer to the holding corporation under the provisions of the preceding paragraph, 1307, or more, of the common shares thereof. [Italics are supplied.]**

The purchase of an interest in the Ajax pipeline, according to officials and directors of the Standard Oil Co. (Ohio), "offered the opportunity for a material reduction in the delivered cost of crude oil . . . [and] a favorable contract for the purchase of crude oil for a period of years, thus assuring it of a large part of its crude oil

[11] Company Records: Agreement – Standard Oil Co. (N.J.), The Pure Oil Co., Standard Oil Co. (Ohio), December 20, 1930.

requirements." [12] The arrangements with the Carter Oil Company for obtaining Oklahoma crude, however, while making Ohio Standard's crude supply more certain and secure, continued the high rates for gathering, handling, and trunk-line transportation that had applied to the company's earlier purchases of crude oil from the Prairie Pipe Line Company. Ohio Standard's minority interest in the Ajax Pipe Line Company, moreover, did not result in much of an offset to the high cost of its crude oil transportation because it was responsible for taking nearly half of the total Ajax runs. Also, Ajax had only trunk lines and served only the five companies that had a financial interest in it. No crude oil actually was purchased by the Ajax Pipe Line Company and no tariffs were issued. Since the company was an intermediate carrier only, the charges were based on agreement with other carriers for division of through tariff rates, and the minimum tender was 100,000 barrels.

In October, 1931, Ohio Standard took another step toward integration by purchasing all the properties of the Solar Refining Company, at Lima, Ohio. This firm, formerly a subsidiary of the Standard Oil Co. (N.J.), engaged solely in the business of supplying Ohio Standard with products refined from crude oil produced in the Lima field. For many years Ohio Standard had purchased all but a small portion of the gasoline output of the Solar Refinery. With acquisition of this company, Ohio Standard for the first time in its history was in a position to manufacture all of its sales requirements of petroleum products.

Unfavorable Situation of the Early 1930's

The progress of Ohio Standard's new management toward solving the various company problems and effecting integration of company operations was considerably retarded in the years 1931 and 1932, because of the serious impact of the general business depression of that period, and the rapid uncontrolled development of the newly discovered East Texas field.[13] The resulting effects of this situation on the structure of the oil industry seriously handicapped many oil companies, particularly the nonintegrated refiner-marketers. The influence of these conditions upon a marketing-refining unit like the Standard Oil Co. (Ohio) was summed up as follows: [14]

> **The . . . year 1931 was bad enough in the matter of distorted relativity between crude oil posted prices and prices of finished products. . . .**

[12] *Annual Report for 1930*, p. 9.
[13] The East Texas field, discovered in 1930, has been the largest and most productive oil field in the United States up to this time.
[14] *Annual Report for 1932*, pp. 14 and 21.

The close of the year 1932 was characterized by a rapidly increasing demoralization of the price structure and increasingly aggravated price cutting.

During the ensuing two years, which witnessed the Petroleum Code under the NRA, the Oil Administrator's Pooling Agreements, and Hot Oil, the oil industry's basic problem of control over crude oil production reached a violent crisis. Throughout this tumultuous period, the large, fully integrated oil companies were able to protect themselves, at least partially, and to maintain a more or less orderly market over most of the country, but the small unintegrated or partly integrated refiners faced a serious loss of business if they refrained from buying "hot oil." [15] They could not retire temporarily from business without losing both their regular customers and their connections for obtaining a crude oil supply. Their only course appeared to be to stay in business and market their gasoline promptly as best they could in the face of the "hot gasoline" [15] competition.

It was not until 1935, therefore, when the oil industry began to emerge from beneath the double burden of a severe economic depression and a threatened breakdown of its structure of production and prices, that Ohio Standard's management could embark upon an integration program that had been formulated before the general decline of the early 1930's. Meanwhile, some reductions in the company's costs of crude oil transportation were obtained in 1933 and 1934.

Reductions in the Company's Crude Oil Transportation Costs

Ohio Standard's unfavorable position regarding the delivered cost of its crude oil from the Mid-Continent field was somewhat alleviated for a short time in 1933 because of reductions in gathering and commission charges. A brief entitled "Arguments for Reduction in Pipe Line and Other Transportation Rates on Crude Oil, April 20, 1933," which was submitted by the Standard Oil Co. (Ohio) to the owners of the Carter Oil Company and the Ajax Corporation, led to the gathering charge of 20 cents a barrel being lowered to 15 cents, effective August 28, 1933. The Carter Oil Company's commission of 10 cents a barrel was reduced to 5 cents at the same time, as shown in Table III.

The benefit of these reductions to Ohio Standard was short-lived,

[15] The states involved tried forcible prorationing through quotas but even apart from the difficult legal questions involved, prorationing for some years proved impossible of satisfactory enforcement. The petroleum illegally produced outside the quotas was the so-called "hot oil," while gasoline manufactured from it was "hot gasoline."

however, because of the rapid rise in the average well price of 36° gravity Mid-Continent crude, which was brought about by regulatory conditions in the oil industry. Although the average well price of Mid-Continent crude oil reached a low of 25 cents a barrel on May 8, 1933, it rose to $1.00 on September 29 of that year. (See Table III.) As a result, the total cost of Mid-Continent crude delivered at Ohio Standard's Toledo refinery increased from $1.15 on May 8, 1933, to $1.80 on September 29, despite the 10-cent reduction in gathering and commission charges as indicated in Table III.

TABLE III

Historical Price Structure
Delivered Cost of 36° Gravity Mid-Continent Crude Oil At Toledo Refinery of the Standard Oil Co. (Ohio)
1932–1938

Date	Average Well Price – 36° Gravity Crude	Gathering Charge	Commission (Carter)	Pipe Line Rate	Allowance	Total
12/16/32	$.69	$.20	$.10	$.595	$.01	$1.595
1/20/33	.44	.20	.10	.595	.007	1.342
5/ 8/33	.25	.20	.10	.595	.005	1.150
6/19/33	.44	.20	.10	.595	.007	1.342
8/28/33	.64	.15	.05	.595	.008	1.443
9/ 6/33	.74	.15	.05	.595	.009	1.544
9/ 8/33	.89	.15	.05	.595	.011	1.696
9/29/33	1.00	.15	.05	.595	.012	1.807
7/20/34	1.00	.10	.05	.5225	.0115	1.684
1/ 9/36	1.10	.10	.05	.5225	.0125	1.785
1/28/37	1.22	.10	.05	.5225	.0137	1.9062
10/13/38	1.02	.10	.05	.5225	.0117	1.7042
10/15/38	1.02	.10	.05	.40	.012	1.582

Source: Company Records, Standard Oil Co. (Ohio)

In July 1934, the Ajax pipeline rate on crude oil from the Mid-Continent area was reduced from 59.5 cents to 52.25 cents a barrel. This benefited Ohio Standard to the extent that its total delivered cost of crude oil at Toledo was reduced from $1.80 as of September 29, 1933, to $1.68 effective July 20, 1934. Company executives still felt, however, that the cost of crude delivered by the Ajax pipeline was unduly high. A special "policy memorandum" by the company's research director contained the following statement regarding Ohio Standard's delivered costs of crude oil.

> **The relationship of crude delivery costs to a sound refining position for the company is so great that reasonable transportation charges are not**

only an end in themselves but are a key to a great many more positive advantages.

At the same time the research director also made an analysis of the net effect over a 10-year period of "the Ajax setup" on Ohio Standard's costs of transportation as compared with those of other parties to the agreement. Excerpts from the memorandum are shown below: [16]

> The main purpose of Ajax presumably is to accomplish the transportation of crude oil for the various parties. . . . But the cost of transportation for each party will, of course, vary according to the difference between what it puts in and what it gets out of the corporate "pool," so to speak. This is true because each company pays at the outset a much greater amount for transportation than it costs Ajax to provide the said transportation. The whole thing, therefore, is simplified if one looks at the Ajax Corporation as a sort of "pot" into which each party "antes" at the outset or during the 10-year period, and out of which each party gets certain receipts during or at the close of the 10-year period. The difference between what it puts in and what it gets out, therefore, constitutes the cost to each company of having its crude oil transported.
>
> . . . If the original set up of rates, quotas, and common stock participation obtain throughout the period it is going to cost us around 22¢ a bbl. for our crude transportation thru the Ajax line, giving us a net saving of less than 10¢ a bbl. Contrasted with this is Jersey's cost of around 1¢ a bbl. and Pure's of 10¢ a bbl. if our common stock is assumed to be worth $85.01 at the end of the period, or somewhat more if our common stock is assumed to be worth less. I have shown the figures on the basis of two valuations for our common stock.
>
> . . . . .
>
> The whole matter of Ajax preferred stock, to the extent that it arose out of the exchange of such stock for our common stock, may, of course, be considered as quite foreign to the main purpose of the pipeline. Viewed in this light, it will be found that we fared very badly by the injection of this extraneous factor into the Ajax picture, regardless of what valuation is assumed for our common stock.

Although Ohio Standard was seriously hampered by its disadvantageous long-term contract for the delivery of crude oil and by its remoteness from the Mid-Continent as the main source of its crude oil supply, the management made every effort to take such steps as it could to purchase nearby crudes. Whenever an opportunity occurred that did not require heavy investment or involve too large a volume of crude to interfere with the company's main contract obligations, crude oil was purchased from sources in Michigan, Illinois, and Kentucky. In 1933, more than 10 million barrels or

[16] Company Records: Memo to W. T. Holliday Re Ajax Pipe Line Figures Over a 10-year Period, February 18, 1934.

about 89 per cent of the company's total purchases of crude oil came from the Mid-Continent and the balance of from one to two million barrels from the three nearby states mentioned above. Substantial savings in delivered costs per barrel were made on most purchases of local crudes as compared with the company's purchases of Mid-Continent crude. Such savings in 1933 were estimated at about $216,000, a large amount in relation to the company's net loss of $823,000 for that year.

Acquisition of an Interest in the Fordsville Pipe Line Company

The company's source of crude oil in Kentucky was considerably reinforced late in 1934 by its acquisition of a 60 per cent interest in the Fordsville Pipe Line Company. Thus, by the end of 1934, Ohio Standard was engaged in gathering approximately 1 per cent of its own crude oil requirements direct from producers in Kentucky. While this was a very meager start, nevertheless, it was significant in that it marked the company's first integrational step toward purchasing and gathering its own crude oil supply.

Major Steps of Company's Integration into Crude Oil Purchasing and Transportation, 1935–1940

In order to strengthen its basic position, Ohio Standard initiated gradually, commencing in 1935 and 1936, a major program of integration and expansion into crude oil purchasing and transportation. Having already acquired 60 per cent ownership of the Fordsville Gathering System, Inc., in western Kentucky, Ohio Standard proceeded in 1935 to enlarge and extend this system. As a result, about 2,000 barrels a day of Kentucky crude oil were made available to the company's refinery at Latonia at favorable cost. The company also obtained a low freight rate comparable to a water haul rate on Kentucky crude oil transported to its Latonia refinery.

Simrall Corporation and the Michigan-Toledo Pipe Line Company

When production of crude oil in Michigan increased substantially in 1935, Ohio Standard purchased 50 per cent of the outstanding stock of Simrall Corporation. Interest in this company, a purchaser and gatherer of crude oil in Michigan, was obtained soon after the discovery of the Crystal Pool. This gave Ohio Standard an opportunity to purchase a supply of its crude oil in Michigan directly from producers. In the absence of any other transportation facilities in this Michigan area, crude oil from the Crystal Pool was initially delivered to the company's Toledo refinery by tank car. While the

amounts of crude oil transported to the Toledo refinery in this manner in 1935 did not constitute a large percentage of the company's total requirements, part ownership of Simrall did assure the company of a supply of Michigan crude oil which could be transported to its Toledo refinery at favorable delivered cost.

In the fall of 1935, the Michigan-Toledo Pipe Line Company was organized to construct and operate an 8-inch trunk line, approximately 142 miles in length, from the southern end of the Simrall Corporation's gathering system to Toledo. Ohio Standard purchased a one-half interest in this line having a daily capacity of 10,000 barrels which could be increased to 20,000 barrels by installation of additional pumping equipment. The tariff on this trunk line haul represented a saving of 14 cents a barrel compared with transportation by rail, and a saving of 12 cents when compared with a combination of pipeline and water haul. Ohio Standard, of course, received 50 per cent of the profits of this pipeline. After completion of the Michigan-Toledo pipeline in February, 1936, all Michigan crude oil purchased by Ohio Standard was carried to its Toledo refinery through this trunk line. In addition, crude oil was transported through this line to Toledo for other shippers, the line being operated at maximum capacity.

In March, 1937, Ohio Standard's ownership in Simrall Corporation and the Michigan-Toledo Pipe Line Company increased from 50 to 70 per cent. The assets of these companies were then consolidated with those of the Standard Oil Co. (Ohio) and the capacity of the Michigan-Toledo line was doubled. The Simrall Corporation then extended its gathering system about 35 miles to the new Buckeye field, which had developed into a substantial producing area. Numerous other extensions in the Simrall gathering system were constructed so that its crude oil lines were doubled in 1937 as compared with 1936. At the same time, Ohio Standard was increasing its purchasing and gathering of Kentucky crude oil through the Fordsville System.

Shift to Nearby States as Main Source of Crude Oil

Through the Simrall Corporation, operating in Michigan, and the expanded operations of the Fordsville System in Kentucky, Standard of Ohio obtained directly from producers in these states a total of 12 per cent of its crude oil requirements in 1935, and 15 per cent in 1936.

When production in the new Illinois Basin commenced late in 1937, Ohio Standard immediately entered this area as a purchaser

of crude oil with its own gathering lines. The company continued this activity as additional new fields were brought into production, both in the eastern part of the Illinois Basin around Clay City and Alvey, and in the Centralia, Patoka, and Salem areas. With the achievement of substantial crude oil production in Illinois, Ohio Standard organized a new, wholly owned subsidiary in 1937, the Sohio Corporation, to purchase and gather crude oil in Illinois.

Ohio Standard also purchased some 20,000 acres of oil and gas leases in Kentucky in 1937, of which about 4,300 acres were already producing crude oil. This production was gathered into the lines of the Fordsville System. In the first nine months of operating these leases, 25 per cent of Ohio Standard's total investment was returned so that in addition to assuring the company a supply of crude oil, this activity proved very profitable. The crude oil gathered from these leases by the Fordsville System in Kentucky was transported by rail to Ohio Standard's refinery at Latonia.

The pipelines fully owned by Ohio Standard, or in which it had a major interest, operated gathering lines in 1937 totaling about 87 miles in Kentucky, 46 miles in Illinois, and 180 miles in Michigan. The percentages of total crude oil purchased by the company in 1937 that were gathered direct from producers in each of these three states were as follows: Michigan 20 per cent, Kentucky 7 per cent, Illinois 3 per cent. The percentages of total crude oil purchased by Ohio Standard from other gathering companies in 1937 by areas were the following: Michigan 8 per cent, Ohio 1 per cent, Mid-Continent 61 per cent.

In 1938 and 1939, there was an even greater shift in Ohio Standard's crude oil purchases away from the Mid-Continent field to the states of Kentucky, Michigan, Illinois, and Indiana. While the company's purchases of crude oil from Michigan and Kentucky had been increasing in substantial amounts for several years, in 1938 with the exceptionally rapid development of crude oil production in the Illinois Basin, Ohio Standard became a substantial purchaser of crude direct from producers in that state. Operations were also extended into Indiana. As a result, the crude oil purchased by Ohio Standard in the Mid-Continent area declined to less than 3 per cent of its total consumption in 1939.

Lower transportation costs were not the only reason for the economy of these sources of supply. To a large extent the savings were attributable to the fact that crude oil purchased in nearby states was gathered and transported to the company's refineries by its own pipelines, or those in which it held a majority interest, at

much lower cost than Ohio Standard had to pay the Carter Oil Company for purchasing and gathering Oklahoma crude. In the case of Michigan crude oil, Ohio Standard owned the majority interest in the Michigan-Toledo Pipe Line Company, which conveyed this crude to its Toledo refinery. Illinois and Kentucky crudes, however, until 1939, were shipped via other carrier pipelines or by rail.

Early in 1939 when the Owensboro-Ashland Company was organized to purchase and gather crude oil in Kentucky, Ohio Standard bought 50 per cent of its outstanding stock. Owensboro-Ashland then acquired the properties of the Fordsville Gathering System, together with facilities previously operated by other companies. Owensboro-Ashland thus became the largest purchaser and gatherer of crude oil in western Kentucky. This company purchased at the well and gathered substantial quantities of crude oil daily, supplying a major portion of the crude oil consumed by Ohio Standard's Latonia refinery.

Another important development in Ohio Standard's crude oil transportation and purchasing activities in Kentucky was its acquisition, in 1939, of a 50 per cent interest in gathering lines in the old western Kentucky fields. This system, which had previously been purchased from the Illinois Pipe Line Company by the Ashland Refining Company, the latter retaining a 50 per cent interest, consisted of 317 miles of pipelines and a terminal on the Ohio River at Owensboro. By this purchase Ohio Standard was able to solve a problem of many years standing, i.e., how to get its Kentucky crude to the Ohio River, from which point it could be transported by river barge to its Latonia refinery at a much lower cost than by rail.

By integration into crude oil purchasing and gathering operations, the company thus was able to meet its refinery and sales requirements and to build up its crude oil inventory to a desirable level. Most of the crude oil was purchased directly from producers through the gathering facilities of Ohio Standard's affiliates and subsidiary companies. The Sohio Corporation, which was the principal crude oil purchasing subsidiary of Ohio Standard, became the largest purchaser of crude oil in the Illinois and Indiana fields by 1940. Total gathering lines owned and operated by the Sohio Corporation increased from 470 miles at the end of 1939 to 732 miles in 1940.

Pipeline Integration

Concurrent with the company's integration into crude oil purchasing and gathering operations, its main pipeline systems were

developed. By construction or acquisition of crude oil pipelines, Ohio Standard had by 1939 not only become a transporter of its own crude oil requirements from oil wells to its refineries, but also a common carrier of crude for other companies through operation of its own trunk lines.

In 1939, when Ohio Standard obtained all the remaining outstanding stock of the Fordsville System, most of this company's assets were then transferred to the Owensboro-Ashland Company. Ohio Standard's crude oil from Kentucky was thereafter transported through wholly owned pipelines to its Latonia refinery. The Michigan-Toledo pipeline, which commenced operation in 1936 and carried Michigan crude to the company's Toledo refinery, represented Ohio Standard's first venture into pipeline operation as a common carrier. The Sohio Pipeline Company, organized in 1937, was the company's second venture in trunk line operation. This line first connected the Illinois gathering facilities of Ohio Standard with an independently operated common carrier, the Wabash pipeline The latter line and its connecting carriers transported crude oil purchased in Illinois by the Sohio Corporation to Ohio Standard's refineries in Ohio. The steadily increasing production in Illinois in 1938 and 1939, however, necessitated additional through trunk line capacity into Ohio. Consequently, in 1939 the Sohio Pipeline Company acquired by purchase from Tidewater Pipeline Co., Ltd., the latter's 6-inch trunk line extending approximately 450 miles from Stoy, Illinois, to McKelvey, Pennsylvania, near the Ohio-Pennsylvania state line. Deliveries of crude oil through this line and a connecting carrier furnished crude supply for Ohio Standard's refinery at Cleveland.

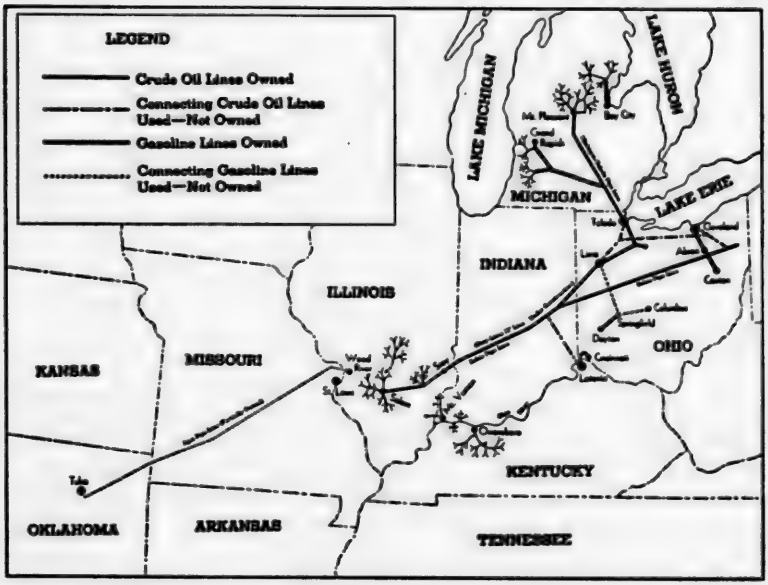
A 10-inch line constructed by the Sohio Pipeline Company in 1939 connected the company's trunk line system with oil fields in the Illinois Basin, and in 1940 extensions were completed to the company's refinery at Lima, where a connection was made by which crude was delivered through the Buckeye pipeline to Toledo and Cleveland. Thus, by the end of 1939 the Sohio Pipeline Company had also constructed connecting trunk lines from practically every new producing field in southern Indiana and Illinois to a Marine Terminal on the Ohio River at Mount Vernon, Indiana. Between 1937 and 1940 approximately $5 million was expended for the construction and acquisition of crude oil pipeline facilities. The Sohio Pipeline Company's system had capacity for handling 60,000 barrels of crude oil daily.

In 1940, Ohio Standard purchased the remaining 25 per cent

interest in the Michigan-Toledo pipeline which was then merged into the Sohio Pipeline Company. Thus, between 1935 and 1940, Ohio Standard's integration of pipeline facilities for the transportation of crude oil from oil fields to its refineries was almost fully effected, and it also owned and operated an extensive system of

EXHIBIT 2

CRUDE OIL AND GASOLINE LINES OWNED, AND CONNECTING LINES NOT OWNED, STANDARD OIL CO. (OHIO), 1939



SOURCE: *Annual Report for 1939*, p. 7.

common carrier lines. Exhibit 2 shows crude oil and products pipelines owned by Ohio Standard in 1939 and connecting lines used but not owned by the company.

Renewal of Contract with Ajax Pipeline

The agreement between the Carter Oil Company and Standard Oil Co. (Ohio), Pure Oil Co., Imperial Oil Ltd., and Standard Oil Co. of New Jersey (Delaware), for the transportation of Mid-Continent crude via the Ajax pipeline, was renewable at the end of 1935. At that time Ohio Standard was paying a 10-cent gathering

charge and a 5-cent commission on every barrel of crude purchased from Carter that was carried through the Ajax and connecting pipelines to the company's refineries in Ohio. (See Table III.) While company officials felt these charges to be unwarranted, they renewed the contract with Carter for another five-year period with the understanding "that there were certain matters in connection with crude oil purchase arrangements which [they] desired to discuss with Carter's parent company, the Standard Oil Co. (N.J.)." [17] One of these matters was the amount of the marketing charge paid to Carter, which Ohio Standard contended "should be eliminated or greatly reduced." [18]

Despite this protest, no reduction was made in Carter's gathering or commission charges between 1935 and 1940. But during this period, as already shown, there was an important shift from the Mid-Continent to nearby states as Ohio Standard's main source of crude oil, only 2.4 per cent of Ohio Standard's total crude oil requirements coming from the Mid-Continent through the Ajax line by 1939. Thus, wholly apart from the existence of any differential in the prices of crude oil prevailing in the Mid-Continent fields as compared with those in the fields closer to Ohio Standard's refineries, the change in the source of the company's crude oil supply had reduced its pipeline transportation costs. Ohio Standard's dependence on the Carter Oil Company and the Ajax pipeline had virtually ceased.

Meanwhile, in October of 1938, there had been a reduction in the Mid-Continent pipeline tariff rate from 52.25 cents a barrel to 40 cents (see Table III), which resulted from the case before the Interstate Commerce Commission in which Ohio Standard was the principal plaintiff. In its brief, Ohio Standard had pointed out that the rates in effect were excessive and had presented figures based on company records showing actual costs for the movement of Mid-Continent crude to its various refineries.

Transportation of Crude Oil by Barge and Tanker

Arrangements made in 1939 for transporting Kentucky crude to a terminal at Owensboro on the Ohio River marked the beginning of Ohio Standard's barging operations. At about the same time, the Ohio River Pipeline was organized, 50 per cent of its outstanding stock being issued to Ohio Standard. Subsequently, the Ohio River Pipeline acquired and began operating a short trunk pipeline from

[17] Company records: Memo to W. T. Holliday, May 22, 1936.
[18] *Ibid.*

Indiana across the river to Owensboro, Kentucky. (See map, Exhibit 2.)

In addition to barging 2,000 to 2,500 barrels a day of Kentucky crude from Ohio Standard's terminal at Owensboro up the Ohio River to the Latonia refinery, the Ohio River Pipeline Company also transported about an equal quantity of crude from Ohio Standard's loading terminal at Stanley, Kentucky, which was the receiving point for oil produced from the nearby Birk City oil field. Similarly, crude oil from a producing pool near Henderson, Kentucky, was barged up the river to Latonia.

Across the Ohio River on the Indiana side, Ohio Standard purchased about 700 barrels of crude daily from the Sun Oil Company which was also carried by barge up the river to Latonia. At Mt. Vernon, Indiana, where Ohio Standard had another terminal receiving crude oil from the Griffin field, the Ohio River Pipeline Company received from 3,000 to 4,000 barrels daily which it also carried by barge up the river to Latonia. Thus, by the end of 1939, a total of approximately 9,000 barrels of Kentucky and Indiana crude oil was barged daily for Ohio Standard's operations.

Ohio Standard purchased four barges having capacity for transporting a total of about 3,000 barrels of crude oil daily. A similar quantity of Kentucky crude oil was exchanged for Illinois crude. This left about 3,000 barrels a day to be transported by additional rented barges. It was Ohio Standard's policy to hire the towing of all barges so long as it could obtain satisfactory rates and service.

Ohio Standard had commenced use of tankers on the Great Lakes as early as 1930, acquiring one third of the stock of the Great Lakes Transport Corporation when it was formed in that year. One of the two main functions of the Great Lakes Transport Corporation was to deliver gasoline and other products by tankers from Ohio Standard's Cleveland and Toledo refineries to the Fuel Oil Corporation at Detroit. The main function of the latter company, which also owned an interest in the Great Lakes Transport Corporation, was to carry crude oil by tankers from Michigan ports to Ohio Standard's Toledo and Cleveland refineries.

When production of crude oil in western Michigan revived, making it a substantial crude oil producing region, Ohio Standard had at first purchased crude in this area through its subsidiary, the Simrall Corporation. But these oil fields were far removed from the Michigan-Toledo pipeline, and from Simrall's other operations, Company officials of Ohio Standard therefore arranged for the Tri-

Lakes Corporation to take over the company's operations in western Michigan. This corporation had been operating Ohio Standard's terminal at Bay City, Michigan. Crude oil from nearby fields reached Bay City by rail and then was shipped by tanker to Cleveland. On October 1, 1939, however, all of Tri-Lakes' assets and operations were transferred to the Sohio Corporation so that western Michigan might constitute one complete division of the latter company.

The Sohio Corporation had not been operating long in western Michigan before the Bloomingdale Pool was brought into production. This was a small but very prolific pool underlying most of Bloomingdale and the surrounding area. Although the Sohio Corporation endeavored to absorb as much of this production as possible, it could not handle all of it through its own facilities. The excess crude oil from this area was therefore shipped in tank cars to Chelsea, Michigan, where Sohio's crude oil gathered from other western Michigan areas was also transported. At Chelsea, the oil was then pumped through a short connecting pipeline into the company's Michigan-Toledo main trunk line to Toledo. Although the freight rate from Bloomingdale to Chelsea was approximately 22 cents a barrel when Tri-Lakes began operations in the area, this rate was reduced to slightly under 14 cents in 1939. In subsequent years, substantial additions to Ohio Standard's tankage of crude oil on the Great Lakes were made by its two subsidiaries operating in this region, the Sohio Corporation and the Sohio Pipeline Company.

Savings and Advantages of Integration into Crude Oil Purchasing and Transportation

The substantial savings in costs and other advantages resulting from integrational moves by the Standard Oil Co. (Ohio) during the 1930's may be summarized as follows:

Savings in Cost

As we have seen, Ohio Standard's use of Mid-Continent crude declined from 88 per cent of all its crude throughput in 1936 to 2.4 per cent in 1939. Its consumption of Illinois-Indiana crude oil, on the other hand, increased from 1 per cent of its total requirements in 1936 to 54 per cent for the year 1939. During the same period consumption of Michigan crude rose from 9.4 per cent to 33 per cent. For the year 1939, the company's consumption of

crude oil originating in its own state of Ohio was even greater than that from the Mid-Continent, amounting to about 3 per cent. Its use of Kentucky crude oil amounted to approximately 7 per cent of total annual requirements.

These changes in sources of supply resulted in substantial savings. In the first place, the shortening of the average distance of crude oil movement from area of origin to the company's refineries materially reduced the cost of transportation. In 1935, the average distance which crude oil consumed by Ohio Standard refineries moved through pipelines was 1,025 miles, whereas in 1939 it was only 465 miles. Moreover, the common carrier pipeline tariff from Oklahoma via the Ajax pipeline and the gathering and commission charges of the Carter Oil Company constituted about 38 per cent of Ohio Standard's total delivered cost of crude oil in 1935. While the well price of Michigan 36° gravity crude was slightly higher than for the comparable grade of Mid-Continent crude ($1.02 as compared with $1.00), the actual delivered cost of Michigan crude oil at Toledo was 31.5 cents a barrel less than Mid-Continent crude.

Moreover, although the well cost of all crude oil consumed by Ohio Standard declined generally between 1936 and 1939, the amount of the decline was greater in neighboring states than in the Mid-Continent. In 1936, the well cost of Mid-Continent crude purchased by Ohio Standard, for example, was $1.11 per barrel as compared with $1.24, $1.30, and $1.28 per barrel, respectively, in Illinois-Indiana, Michigan, and Ohio. But by 1939, the Mid-Continent well cost had only declined to $1.02 per barrel, whereas Illinois-Indiana crude was down to $1.05 per barrel, and Michigan crude oil was $.85 per barrel. Thus, not only the shorter distance, but the more favorable price of crude oil at the wells in nearby states resulted in substantial savings in over-all delivered costs of crude to Ohio Standard's refineries.

A further beneficial consequence of the shift in Ohio Standard's source of crude between 1936 and 1940 was the availability of crude oil that could be purchased at advantageous terms of exchange with other companies. Ohio Standard's subsidiaries engaged in purchasing and gathering crude oil in Michigan, Illinois-Indiana, and Kentucky were able to obtain considerable quantities of crude oil from fields nearer the company's refineries in exchange for crude oil purchased from more remote fields in the same states. By this process the costs of transporation were still further reduced.

Finally, the shift in the company's source of crude oil supply not only resulted in substantial savings in the cost of crude oil at the

well and in a dramatic decline in transportation costs to the company's refineries (see Table IV), but it was *ipso facto* responsible for the company's integration into crude oil purchasing and transportation operations. The company thereby not only effected substantial reductions in costs but also gained certain other advantages that would not have been possible without such integration.

TABLE IV

TRANSPORTATION COSTS IN CENTS PER BARREL FROM WELLS TO THE COMPANY'S REFINERIES, 1929–1939

Year	Cents Per Barrel	Year	Cents Per Barrel
1929	100	1934	72
1930	92	1935	65
1931	89	1936	66
1932	84	1937	58
1933	84	1938	39
		1939	23

SOURCE: Standard Oil Co. (Ohio): *Amended Application for Special Relief Under Internal Revenue Code, Sec. 722, 1941.*

New Organizational Facilities and Skills Resulting from Integration

Ohio Standard's development of its own organization for purchasing, gathering, and transporting crude oil gave the company the advantage of being able to enter new areas of oil production whenever a good opportunity arose, in contrast to its former situation of being bound to a long-term contract from one source. The company's entrance into new producing fields in Kentucky, Michigan, Illinois, and Indiana serves as an example of its newly acquired flexibility. With an experienced purchasing and transportation staff, alternative opportunities could be exploited with substantial savings. In 1938, for example, the company had an opportunity to make an advantageous purchase of crude oil in the West Branch and Arenac fields of Michigan which were then in flush production. Although company officials considered building a pipeline to Bay City, Michigan, at which point crude oil could then be loaded into tankers, instead they were able to obtain from the Detroit and Michigan Railroad the very low freight rate of 5½ cents per barrel for the transportation of crude oil a distance of approximately 50 miles. The company cooperated with the railroad in making arrangements for unloading the oil in sufficient quantities so that tank cars could be moved in trainload lots. This turned out to be advantageous both for Ohio Standard and the railroad, inasmuch

as the latter's profits in the following year were greatly improved. At the same time, Ohio Standard gained because of much lower transportation costs.

It thus becomes apparent that the Standard Oil Co. (Ohio) and its subsidiaries engaged in the purchasing and transporting of crude oil benefited considerably from such integration. While the need for integrating these functions was evident to the new management before 1930, certain critical problems had to be remedied before a planned program of integration could be instigated. Hence, although the company made a slow start in integrating its operations during the early 1930's, great strides were made between 1935 and 1940.

The Company's Integrational Pattern

Among active competitors of Ohio Standard in the Ohio marketing area were such major integrated companies as Gulf, Shell, Sinclair, Socony, Sun, and The Texas Company, which together, in 1935, accounted for more than one third of the state's taxable gasoline sales. These companies, with some others, had long since unified crude oil procurement, transportation, refining, and marketing under parent company administration, such integration having by 1935 proved decidedly advantageous.

The long-range integration plan inaugurated by the management of Ohio Standard in 1935 departed somewhat from the pattern of integration by acquisition and merger that had been pursued by its major company competitors. "The new pattern consisted in functional association and financial participation with independent interests engaged in the extension of existing or opening up of newly discovered fields in advantageously located areas."[19] Thus, the acquisition or organization of subsidiary or affiliated companies *per se* was not necessarily the main objective or instrument in "bringing about an economically delivered crude supply at the refinery gate."[20] While in some instances affiliates or subsidiaries were organized or acquired, and later merged into sizable integrated units of Ohio Standard, in others economical extension of operations was accomplished without any specific instrument of integration. A notable example was the advantageous freight arrangement for the transportation of crude by railroad from the

[19] Standard Oil Co. (Ohio): *Amended Application for Special Relief Under Internal Revenue Code, Sec. 722, 1941.*
[20] *Ibid.*

western Michigan fields in lieu of construction and operation of pipelines by a subsidiary or affiliated company.

By means of a purchasing and transportation network built up according to the methods described above, Ohio Standard was able within a five-year period to obtain long-term cost economies at a capital expense that was relatively low in comparison with its major company competitors. The net effect of this program by the end of 1939 was that the Standard Oil Co. (Ohio) had effected "what with a balance of commitments amounted to a *transportation revolution* whereby for all practical interests and purposes . . . the whole of the crude purchases were gathered direct from producers in the near and contiguous states of Illinois, Indiana, Kentucky, Michigan," [21] and in Ohio itself.

Conclusion

The foregoing account reveals the acute problems faced by a refiner-marketer of gasoline in the 1930's, particularly those relating to the acquisition and transportation of crude oil. It also discloses the need for integrating the functions of purchasing and transportation during a period of unbridled competition, and the profitable results obtained through such integration by the Standard Oil Co. (Ohio). It is the author's belief that this case illustrates the importance and value of pipeline integration to the refiner of gasoline.

As indicated in the premise, the dual role of management of fully integrated oil companies makes possible effective competition at each of the various levels of operation with other concerns performing the same activities. Better continuity and stability of over-all operations also can be gained from integration. Moreover, advantageous profit opportunities have stimulated the development of fully integrated firms in the oil industry.

Among the general conditions which have favored the growth of integrated oil companies, McLean and Haigh cite "the profit opportunities at the different levels of the oil industry." [22] In their study, they note particularly "that the profit opportunities at the refining level of the industry, the central point in the oil process, have been extremely unstable, and that both forward and backward integration from the refining position have provided a very significant means by which greater stability could be secured." [23]

[21] *Ibid.*
[22] McLean and Haigh, *The Growth of Integrated Oil Companies*, p. 663.
[23] *Ibid.*

It has been shown in the context of this article that Ohio Standard's integration into crude oil purchasing and transportation enhanced its profit considerably. At the same time, the opportunity such integration offered to engage in the purchase and exchange of crude oil with other companies resulted in further profit. While it is impossible to predict what might have happened if Ohio Standard had not integrated backward into crude oil transportation and purchasing during the extremely difficult period of the 1930's, the conclusion seems justified that the company could not have prospered without taking these steps.

Since the 1930's, the Standard Oil Co. (Ohio) has greatly extended the scope of its operations, including integration into crude oil production. The latter had actually commenced in 1938 with the company's purchase of various oil leases in Kentucky and Michigan. Its major expansion into crude oil production between 1941 and 1950 is described in Chapter VIII of McLean and Haigh's book.[24]

The various integrational moves of the Standard Oil Co. (Ohio) since inauguration of new management in 1928 thus not only enabled it to regain its lost position in the Ohio gasoline market, but contributed toward the continuity and stability of its operations over a long period of years.

[24] *Ibid.*, see pp. 239–254.

Alexander Hamilton Church and the Development of Modern Management*

A perception of the importance of measuring overhead costs led Church to analyze the totality of management. Among the first to formulate a comprehensive theory, he studied management in historical depth and defined it as a distinct function with identifiable components that could be manipulated in the interest of greater efficiency.

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Today the name of Alexander Hamilton Church is seldom mentioned when the development of modern management is discussed. Occasionally his name will be mentioned in a biography of some other contributor to management literature, or in some inclusive collection of contributors to management thought, such as Urwick's *Golden Book of Management*,[1] but seldom at any other times. This is unfortunate, for Church was a perceptive analyst who presented an original view of the function of management. Writing

* The author is deeply indebted to Professor M. J. Mandeville of the University of Illinois for reading this article and offering many helpful suggestions.

[1] London, Newman Neame Ltd., 1956.

from 1900 to 1930 he was one of the creators of modern management literature. Neglect of his work has left a gap in our knowledge both of the individuals who contributed to modern industrial management, and of some important developments in its evolution. As a partial step in correcting this neglect, the present article will attempt to present a summary of some of Church's more important work in the analysis of the managerial function.

In all, Church wrote some six books and sixteen articles. Four books and two articles deal with cost accounting, the remainder with various aspects of management. His contributions to cost accounting were numerous and significant. However, while they have a relationship to his management writings, which will be discussed later, they are not the main concern of this paper. Here attention will be given to his management writings and some of the main concepts developed in them.

Church's Concept of the Development of Interest in Management

During the last decades of the nineteenth century interest in management as a subject of study grew rapidly. Management itself was obviously not a new function in the operation of a business enterprise, but both its recognition as a separate function and interest in ways to perform this function competently were relatively new. Church turned his attention, in a way that was characteristic of him, to the question of why an interest in management developed at that particular time. Perhaps this is the best point from which to begin to describe his work.

To Church, the interest about management in his day grew out of the vast changes which had taken place in industry since the late eighteenth century, particularly the metal working industries. He selected three aspects of this development as being particularly important: the remarkable advance in the methods of manufacturing, a resulting development of specialized skills, and the larger number of employees engaged by individual firms. All three of these factors required greater managerial skill to use properly.[2]

The likely result of one or both of these factors was to produce conditions of internal confusion and disorder, which had apparently become fairly common in Church's day. Business success, at

[2] Alexander Hamilton Church, "The Meaning of Commercial Organization," *Engineering Magazine*, vol. 20 (1900), p. 391.

least in the metal working industries, had frequently been the result of technical knowledge and skill. But the internal problems now facing many firms were not of this nature, and when the old solutions failed, the owners and managers of these firms were faced with a new problem – a managerial problem – for which they had only partial answers. In 1900 he wrote: [3]

> **Reform begins and generally ends with the modernizing of machinery and non-productive appliances in that department, such as cranes, shop-transport, tool-rooms and the like, leaving untouched the system of nerves, by which the whole is directed. . . . The General effect of leaving this important section out of account is much the same as that of trying to restore life to a dying man by mounting him on a bicycle, instead of by building up the decaying tissues first.**
>
> **Small wonder it is that drastic re-organization often fails to give relief. Co-ordination is the keynote of modern industry, but it is a work of which the meaning is too often ignored by would-be reformers.**

He then goes on to summarize the background to this problem and the direction to be followed to cope with it.[4]

> **The necessity for co-ordination already referred to is an inevitable result of the evolution of the factory, no one mind can grasp and hold all the details. The object of modern administrative organization is to readjust the balance of responsibilities disturbed by the expansion of industrial operations, and to enable the central control to be restored in its essential features.**

As to what it would take to improve the managerial function Church saw several requirements. One is information. "The object of the commercial, or, as it might also be termed, the administrative organization scheme, should be to collect knowledge of what is going forward, not merely qualitatively, but quantitatively: It should also provide the means of regulating as well as the means of recording." [5] The other requirement was for better managerial personnel, for to him managing a large enterprise required the most intelligent of minds.[6]

To place Church's concept of management in perspective, attention must be given to his analysis of the components involved in the conduct of any business. He concluded that there were two basic elements, which, while frequently closely related and having a reciprocal influence, were actually quite distinct and separate.[7]

[3] *Ibid.*, pp. 392–393.
[4] *Ibid.*, p. 395.
[5] *Ibid.*, p. 393.
[6] *Ibid.*, p. 396.
[7] Church, *The Science and Practice of Management* (New York: Engineering Magazine Company, 1914), p. 1.

The first of these is the *Determinative* element, which settles the manufacturing *policy* of the business – what to make – and the distributive *policy* – where to sell and by what means. The second is the *Administrative* element, which takes the policy as determined, and gives it practical expression in buying, making and selling.

This awareness of and concern about the function of management and the reason for this growing problem by Church was extremely rare in his day. Many writers of this period were concerned with various management problems, but Church was thinking about the *function* of management, and sought to find ways of implementing this function.[8] It is this total view of the management function which is perhaps the strongest characteristic of Church's writings. To contrast this with the best-known contemporary of Church in management writing, Frederick W. Taylor did not concern himself with the total management function. He dealt almost exclusively with particular practices of management in the handling of the actual work of the business, notably time study, wage incentives, the planning of work, instructing of workers, and to some extent the control of work and materials in the plant. In a broad sense, Taylor and most others of this period worked in a frame of reference and direction quite different from those of Church; they were concerned with making the worker more efficient as he performed his job, while Church was concerned with making management more efficient as a function.

Manufacturing Functions

In an attempt to provide some framework which would be useful in the analysis of complex business operations, Church developed a set of business functions into which he felt all the activities in operating a firm could be placed. His objective was a set of categories, not only inclusive of all the activities of a firm, but also mutually exclusive. When a firm had a problem and it was possible to determine in which of the functional areas the problem belonged, Church believed that it would then be possible to restrict corrective measures to that area exclusively and eliminate all other categories.

The origin of Church's interest in a functional approach for analyzing the operations of a firm probably goes back to some earlier work he had done in the classification and allocation of overhead

[8] The person who came closest to Church's viewpoint was J. Slater Lewis. The closeness is not surprising since the two worked together for a number of years with Lewis functioning in many ways as Church's tutor. Church gives full and frequent credit to Lewis in his writings.

costs.[9] However, these ideas were not fully developed into a functional framework until 1912 when Church brought out a six-part article entitled, "Practical Principles of Rational Management." [10] He suggested that the industrial management or manufacturing part of a business has four distinct and mutually exclusive activities, or as they may be called, functions.[11]

> . . . in industrial matters there are four great modes or divisions of activity, efficiency in any one of which is entirely independent of the efficiency of the others. These are *design, organization, operation* and *comparison.*

Design relates to the design of the product.[12]

> Operation represents actual process work at the "tool point." Whilst Organization represents all the auxiliary services or "production factors" that bring the work up to and away from the tool point. Comparison consists of, first, physical comparison, such as inspection of parts and product, and testing; and secondly, the various records and accounts, by which the experience of the past is made available for the future.

These definitions are a bit general. While Church later in the article elaborates on them in considerable further detail, this brief set of definitions should be sufficient for descriptive purposes at this point, with one possible exception. When speaking of organization, at this time Church means more than structure. He also includes machinery, its layout, buildings, managerial personnel, and the assembling of trained workers, in short, the total establishment.

In 1914 Church revised this functional arrangement somewhat. They now were: [13]

1. Design, which *originates.*
2. Equipment, which provides physical *conditions.*
3. Control, which specifies duties, and which *orders.*
4. Comparison, which measures, records and *compares.*
5. Operation, which *makes.*

In speaking of these functions he said, "They apply to the routine activity of a manufacturing plant in regard to its internal affairs only." [14]

In this newer list, there are two new functions, equipment and

[9] This work is reported in a series of articles appearing under the general title, "The Proper Distribution of Establishment Charges," *Engineering Magazine,* vols. 21, 22 (1901), and later developed further in the book, *Production Factors* (New York: Engineering Magazine Co., 1910).

[10] A. Hamilton Church, "Practical Principles of Rational Management," *Engineering Magazine,* vol. 44 (1912), pp. 487–494, 673–680, 894–903, and vol. 45 (1913), pp. 24–33, 166–173, 405–411.

[11] *Ibid.,* p. 487 (italics in original).

[12] *Ibid.,* pp. 487–488.

[13] Church, *The Science and Practice of Management,* pp. 37–38 (italics in original).

[14] *Ibid.,* p. 38.

control, which on closer examination are found to be largely the two major parts of the earlier Organization. Equipment is the physical set of production facilities, including machinery, buildings, layout of machinery, and similar items. Control is essentially the managerial function. ". . . it fixes the relations of persons throughout the plant . . . it selects the right personalities to fill the posts whose duties are thus fixed, and supervises their daily performance of these duties." [15]

Further on he wrote, "It is that function which co-ordinates all the other functions and in addition supervises their work." [16]

Church, in both presentations of these functions, insisted that they have great value as tools of analysis, and shows how they can be used for "practical problems" and also scholarly investigations. It is not feasible to describe all these illustrations at this time. However, one illustration of how he uses these functions may be of interest.

Church used this system of functions to explain how the existing manufacturing structure developed.[17]

Historically speaking, all the organic functions represent successive devolutions of the function of administration. This is clearly shown by Table IV (shown here as Figure 1). In the beginning, one man performs all the functions of manufacturing . . . then he entrusts out the function of the Operation and entrusts that to other hands. Next he puts someone in charge of his equipment and so denudes himself of that function. Then, possibly, he engages a designer and ceases to perform that function himself. Finally he engages an accountant and an inspector and hands over to them the function of Comparison. But he still has left the function of Control, which he continues to exercise.

FIGURE 1

TABLE IV. Successive Devolution of the Organic Functions of Manufacturing During the rise of an Industry Toward Modern Conditions.

Stage 1. *Beginnings of Industry.* The craftsman exercises all the manufacturing functions in his own person. (Selling and finance are not included in this discussion.) "The day of small things."

Stage 2. *Devolution of Operation.* A workman and apprentices are engaged for the manual or operative work. The workman exercises supervision and becomes in course of time a fully fledged foreman. Later he has to devolve some of his duties on other foremen, and is called superintendent. (Once an organic function is separated out, devolution goes on within it.) At this stage the owner looks after everything else, but ceases to do operative work.

[15] *Ibid.*, p. 71.
[16] *Ibid.*, p. 74.
[17] *Ibid.*, pp. 72–73.

Stage 3. *Devolution of Equipment.* **Equipment begins to assume importance. A mechanic is engaged to run the power plant, attend to repairs, and do odd mechanical jobs. Later we see him represented by a "works engineer" with a power staff, a repairs staff, an electrician, etc., on whom these specific tasks have been devolved.**

Stage 4. *Devolution of Design.* **The owner finds it necessary to devolve the preparation of designs and drawing, and so engages a designer and frees himself from this function. The designer's work grows and is devolved on subordinates until we may find ultimately a chief engineer, chief draftsman, a production engineer, and experimental staff, etc.**

Stage 5. *Devolution of Comparison.* **Up to this point the owner has only guessed at costs from rough memoranda compiled by himself. He now devolves this work on a cost clerk, who represents the accounting side of Comparison. As the business develops the cost clerk has to devolve details on others, and becomes an accountant, with subordinate people, time clerks, stores-record clerks, etc. Also, the owner ceases to "pass" on each piece of completed work, and devolves this task on an inspector, who represents the technical side of Comparison. Later the inspector's work expands until we find a fully developed testing and inspecting department.**

NOTE. At this point all the activities of administration, exercised by the owner of the business at the beginning, have been devoluted to Organic Functions (themselves made up of groups of individuals with specific duties), save and except his personal controlling and supervising work. Or, in popular language, his function as "boss." This latter work, however, soon outgrows the possibility of his attending personally to all of it; hence we arrive at:

Stage 6. *Internal Devolution of Control.* **Control, which remains vested in the owner of the business, is exercised by means of a regular internal devolution of this function. It begins with the owner himself, who is directly supervising the heads or executives who have been placed in charge of the functions already separated out (as above), and also goes down through the purchasing agent, store keeper, order department, correspondence office, tracing department, shipping office and so forth in definite lines of devolution for special duties. Later we find the organization of "staff" assistants and advisers, whose expert knowledge is at the service of those requiring it.**

NOTE. The five Organic Functions are now completely separated and organized and each has its own internal system of devolution, enabling it to fulfill its special purpose. Our discussion of the problem of management as presented in this book ends here. The organization for manufacturing is now complete. But in large businesses the owner (or the Board of Directors representing the ownership) withdraws still further from actual contact with routine. We then reach:

Stage 7. *Final Stage.* **The administrative and the Determinative elements of Management are separated. The former is devolved on a president or general manager, who is personally responsible for the correct working of the five functions of administration. The Determinative element is reserved by the directors as their special field. They decide on points of policy. But as these decisions are usually based on financial considerations that have little or nothing to do with manufacturing proper, this final stage is not considered in this book.**

As the business grows, however, devolution *within* all the functions becomes necessary. The designer must have his assistants. The accountants and the inspector must have subordinates for specific duties . . . and the executive himself, exercising the function of control, will soon find himself in need of devolution also. He cannot be in several places at once. . . .

What are the steps in the devolution of Control. Church explains this in another of his tables here shown as Figure 2.[18]

FIGURE 2

TABLE V. Scope of the Organic Function of Control

Installation of Control
The Delimitation of Duties

Within the Other Organic Functions. **Commencing with the heads of departments, i.e., the men who are in charge of the organic functions of Design, Operation, Equipment and Comparison, it plans their duties, decides what subordinates they should have, and what specific duties these subordinates should fulfill. It therefore plans the interior structure of the systems by which these functions are exercised.**

In its Own Special Department. **It plans the relations between the above departments, and says which persons shall confer, and when. It arranges all the specially administrative duties, such as ordering, receiving or storing material; receiving customers' orders and passing them to the various departments concerned; supervising the current work of all departments, in the light of costs, wastes, delays, poor work and other irregularities. It arranges all this by planning specific duties for specific persons, including the organization of specialists' advice or "staff" assistance.**

Administrative Function of Control
Supervising, Ordering, Instructing and Training

Within the Other Organic Functions. **Once organized under a head, each function is to a great extent autonomous. In other words, control of the Departments of Design, Operation, Equipment and Comparison is exercised through the heads of these departments, who are responsible for seeing that their subordinates are carrying out their duties as planned originally.**

In Its Own Special Department. **Administratively speaking, control is the great co-ordinator function. It sets everything in motion by issuing orders. Its particular task is to issue orders in such a way that, when all have been carried out, the result is exactly what was intended. It also observes failures, studies their reasons, and sets in motion the mechanism of instruction or training to prevent similar failures in the future.**

This illustration is interesting for several reasons. First it shows the caliber and method of Church's analysis, how he built one idea on another, and carried his analysis from a broad framework down to an analysis of fairly specific points and relationships between internal facets of a department. Secondly, it presents what may well

[18] *Ibid.*, pp. 77–78.

be one of the first growth models for organization structure and operation.

Production Model

Church's analysis of the activity or function of "operation" has a number of interesting components. He viewed "operations" as "a smooth, rapidly running stream of material passing through the plant into the hands of the customer." [19] As he was careful to point out, it is not just a smoothly flowing stream of materials, but one which, "remains in its raw or partly finished state *as short a time as possible.*" [20]

To handle this flow of work, three components are necessary: [21]

(1) Supply and movement of Material
(2) Supply and movement of Instructions
(3) Actual Operation

He recognized that the three components can be handled quite readily through carefully planned systems, but that the very provision of these systems had dangers. "No problem in management requires expert handling so urgently as this if on the one hand, oppressively complex systems of control and, on the other, loose methods involving friction, delays, loss and recriminations are to be avoided." [22]

His operations model then is envisioned as a flow of work which is controlled by three components: A flow of information, a flow of material, and the actual performance of work itself. These components are to be designed to reduce the length of time materials or parts are in the plant. He recognizes that such a model will have fluctuating inputs into all three of these components, and that, therefore, provision must be made for flexibility so that the, "innumerable troubles of everyday factory experiences are easily and instantly responded to by the persons concerned, without the "system" getting into tangles or requiring heroic struggles to get the paper part back into correspondence with the physical facts." [23]

The Science of Management

After the Interstate Commerce Commission hearing of 1910, the term "scientific management" had become almost overnight a house-

[19] Church, "Principles of Rational Management," *Engineering Magazine*, vol. 44, p. 895.
[20] *Ibid.*
[21] *Ibid.*, pp. 894–895.
[22] *Ibid.*, p. 894.
[23] *Ibid.*, p. 895.

hold word. The number of books and articles that discussed the concept and reported what its impact on industry was, and could be, grew very rapidly in the months following these hearings.[24]

Unfortunately, while there were many glowing predictions about what scientific management held for the future, there was little in the way of accurate explanation of what it was.

Church, like many others, wrote about scientific management. However, instead of talking broadly about its glowing potentialities, he tended to concentrate on three general issues. First, the place of scientific management in the development of management. Secondly, what actually constituted scientific management. Thirdly, the place of scientific management in the large framework of a science of management. By way of explanation of this last term, it may be useful to indicate that the term scientific management is so closely associated with Taylor and his associates or with those who worked in the same direction that it really identifies a particular movement or approach to a certain type of management problem. However, the approach of Taylor's scientific management was a rather restricted one in Church's mind and does not constitute all of management, as will be shown in the following paragraphs. To Church, the science of management was a much broader concept than scientific management.

The Place of Scientific Management in the Development of Management

To Church, scientific management was the product of the work of many people and had its roots in the gradual development of industrial management concepts and techniques which had begun at least with the emergence of the factory system. But let us turn to his own words.[25]

> **. . . it cannot be too clearly pointed out that the modern theories of industrial administration represented by that newly coined term "Scientific Management," are no magic formulae, but are the fruition of decades of slow and steady progress and of the laborious work of highly trained and experienced investigators. It is hardly too much to say that the evolution of a science of management was inevitable as soon as the scale of industrial operations became so great that no single manager, however naturally gifted, could continue to control personally all the activities of a plant. Looking at all the circumstances, it may even be asserted that scientific**

[24] Horace Bookwalter Drury, *Scientific Management* (New York: Columbia University, 1915), pp. 18–21.

[25] Church, "The Meaning of Scientific Management," *Engineering Magazine*, vol. 41 (1911), p. 97.

management is, if anything, rather overdue in point of time, for many of its elements were known and understood at the beginning of the factory age.

However, even though he felt a science of management was emerging, he also recognized that it was in a crude, fumbling, undeveloped state. In 1913 he wrote, "The stage through which the study of Management has been passing in recent years bears about the same relation to sober science that Alchemy did to Chemistry." [26]

Crude though the science of management was in those days, he felt that it was started and developing. In fact, its initial developments had produced such notable successes that they threatened to endanger rapid further development.[27]

The eagerness to discover and exploit something new and wonderful has diverted attention from the desirability of getting a correct perspective of the whole facts of production, and has led to attention being focused on one or two practical applications as if these were in themselves sufficient to form a science. . . .

It must be understood that the science of Management like every other science, is abstract. It is not a series of "shop hints." It is not a collection of "short cuts." Just as there is no royal road to the mastery of mathematics, so there is no royal road to the mastery of management. A treatise on the science of management will no more give definite instruction how to manage a shop, than a treatise on strength of materials will give specific directions how to build a new Brooklyn Bridge. A science is an inquiry into first principles, it is not a book of recipes or even of plans.

Basic Components of Scientific Management

In examining scientific management as practiced by Taylor and his associates and attempting to sift out its basic characteristics, Church concluded that it contained two basic ideas. "One is the planning of industrial activity from the consideration of its simplest units; the other is the pre-determination of standards of efficiency." [28]

By the first of these he meant focusing attention on the smallest practical "job" that a person could reasonably do and then to study that to make it most effective. A job of course might only be a small portion of the task of making a part.[29]

The second deals with the concept that with a given set of people and equipment, there is a maximum possible capacity which should

[26] Church, "The Scientific Basis of Manufacturing Management," Journal of the Efficiency Society, 1913–1914, vol. 3 (Feb., 1914), p. 8.
[27] *Ibid.*, pp. 8–9.
[28] Church, "The Meaning of Scientific Management," *Engineering Magazine*, vol. 41 (1911), p. 98.
[29] *Ibid.*, pp. 99–100.

be used as a standard to compare with actual results to determine how efficiently the ultimate capacity is being utilized.[30]

Taking these as the two basic ideas in scientific management, Church then concluded that there was a group of service or satellite activities necessary to make these ideas useful. While these service activities may be extremely important in making the ideas usable, they were subordinate. Unfortunately, however, these subordinate activities such as routing, dispatching, and other production control components (for that matter most of the activities included in Taylor's Planning Department), have been included among the basic ideas of scientific management. To Church, this was to overrate these activities entirely through not recognizing their subordinate status. In fact, this practice tended to take some managerial systems which had been developing for years independently of scientific management and include them as part of it.[31]

To Church, then, scientific management had two basic ideas, both of which were orientated, at that time at least, toward the immediate work situation. This was a rather narrow concept of what Church thought should be included under a "Science of Management."

In his writing, Church repeatedly returned to a common theme that, if a management is going to be concerned with the total efficiency of the firm, it cannot be exclusively concerned with the efficiency of the parts. He pointed out that if attention is given to a major piece of equipment, this machine in order to reach maximum efficiency will have to receive a certain minimum performance from other auxiliary factors of production. To look merely at the main machine and ignore the auxiliary would be impractical. At the same time, once the major component had achieved its maximum capacity ". . . no possible betterment in any of the auxiliary departments could help to increase." [32] He goes further to condemn the practice of looking exclusively at certain operations done on a machine, thereby failing to look at these operations in a larger context.[33]

> **Nor has the recent tendency to force laboratory methods and military manual training on the shop greatly helped to develop the central importance of knowing everything about the machine. It has rather had an opposite effect. It has tended to neglect the broad and the general prob-**

[30] *Ibid.*, p. 98.
[31] *Ibid.*, p. 99.
[32] Church, "Practical Principles of Rational Management," *Engineering Magazine*, vol. 45, p. 674.
[33] *Ibid.*, p. 675.

lems which hold innumerable detailed problems in the solution, and focused attention on the infinitely little. . . .

One of the main characteristics of Church's approach to management is concern for the whole manufacturing enterprise. His tendency was to look at the whole plant and its efficiency as a unit, rather than to concentrate on the individual component of production. Also, he was very much cognizant that within the entire activity, the efficiency of the managerial function was of paramount importance in two ways. First, that the actual work of the employees would be efficient in proportion to the skill of management and, secondly, that in doing its job for the rest of the enterprise management could be either efficient or inefficient in its own operations.

This may well have been the objective of managers from time immemorial, but as had been pointed out earlier, Church felt that the increase in size and complexity of business had made it necessary for many people to study management and to exchange experiences, information and concepts. However, to be fully significant, this information would have to be ordered, put into more useful arrangement.[34]

Under rational management the accumulation of experience, and its systematic use and application, form the first fighting line. But as life is too short for one man, or even one planet to know everything of all that could possibly be known even about their own work, we must confine our efforts as far as possible to knowledge that can be coordinated – that is, worked up into useful working rules and guidances – instead of remaining forever in the condition of an immense unwieldy accumulation of unrelated facts.

Here he referred to facts being tied together by "useful working rules and guidances." Later he elaborated further what he meant by this. In speaking of science he wrote, "It consists of a long series of ascertained facts connected by tried theories that have stood the test of time and criticism." [35]

To summarize some of these points, Church would have a science of management, based upon observed facts, used to develop abstract theories and possibly principles. A second point in Church's view is that these abstract points are not just for the amusement of the scholar and researcher, but have immense practical value to the practicing manager.[36]

[34] *Ibid.*
[35] Church, "Has 'Scientific Management' Science," *American Machinest*, vol. 35 (1911), p. 108.
[36] Church, "The Scientific Basis of Manufacturing Management," Journal of Efficiency Society, vol. 3, p. 9.

Church's approach to management was quite different from his best-known contemporary, Taylor. On some points they were diametrically opposed. There is an interesting relationship with each of their backgrounds in these different points of view. Taylor was an engineer and as such intimately concerned with tools, products, and various machining and manufacturing operations. His basic approach was to focus attention on specific operations and attempt to make them as efficient as possible. Church on the other hand came from an accounting background. He was, in fact, one of the key figures in the development of cost accounting in its most formative stages. Church's particular item of interest was overhead accounts. Not too long before Church began writing, overhead had been considered an item of waste, something to eliminate if at all possible, or if this were not feasible, to reduce as much as possible, treating the remainder as a loss.[37] Church took the view that overhead expenditures represented a legitimate type of expense which one should try to see used in the most efficient manner. He turned to the question, what did the expense or overhead account really represent? His analysis of its content and how it should be allocated brought to him the realization that the overhead was intimately associated with the function of management in several ways. On one hand the wages of the firms' executives and managerial personnel were represented directly in the overhead account. Most of the other items in the account reflected important and long-term decisions by management. How well the overhead expenses were used was largely a matter of how efficiently the management was doing its job. By probing into the significance of the overhead account, Church was led directly to considerations of the function of management and the efficiency with which this function was being performed.

It is also interesting to note that these two viewpoints on management were developed by men deeply involved in ways of measuring performance. Engineering and Accounting are certainly quite different, but they do offer methods of measurement. The debt of management to engineering has been recognized;[38] perhaps its debt to accounting should also receive recognition.

[37] See, for example, J. H. Goodwin, *Goodwin's Improved Book-keeping* (New York, 1889), paragraphs 192–197.

[38] L. Urwick, "Management's Debt to Engineers," The ASME Calvin Rice Lecture.

Why Has Church Been Forgotten?

That Church's work has largely been forgotten may be due to a considerable extent to the distance his ideas were from immediate usability. He was quite abstract, and while his ideas would give the thoughtful men insight into the workings of business enterprises, they did not offer immediate and concrete steps to decrease costs or increase profits. Unfortunately, such specific steps to success have generally been in demand in the business world. Even Taylor suffered from this. The "Efficiency Experts" who claimed to be his descendants frequently were not. They offered gimmicks and techniques that promised immediate reward from their application, but which left much of the heart of Taylor's ideas neglected. Church, whose ideas were even more removed from immediate, measurable reward, fared even worse.

Perhaps some of the answers lie in Church's personality. While he wrote well and fairly prolifically, his own circle of personal acquaintances was quite small. Shy and retiring, he lived for many years of his life almost as a recluse.[39] He did not develop a circle of followers who would carry on and spread his ideas, as did Taylor.

Regardless of the reason, this creator of the first major attempt to conceptualize the function of management and to analyze it in an abstract manner was to pass from the interest of management workers and students.

To summarize then, Church was apparently the first writer to look at the entire managerial function, to try to understand its components and operation in an attempt to make it more efficient. He sought to develop an abstract model of this function which would be usable in the analysis and evaluation of the activities of management. Yet his thinking was never far removed from the difficulties and problems with which theory in this area must always be tempered. He frequently conducted his analysis in a historical framework to understand the development of problems, or of certain factors existent in the operation of businesses. Hence, Church differs markedly from many of his contemporary authors, both in his view and concept of management and in his method of analysis.[40]

This paper does not cover all of Church's managerial concepts. It does attempt to present these ideas of his which seem to be most relevant and useful today. It is hoped also that Church's work and contributions may be rescued from their current neglect.

[39] L. Urwick, *The Golden Book of Management* (London, 1956), p. 114.

[40] Perhaps the closest to Church's broad approach to the study of management was Fayol whose book, *Administration Industrielle et Générale-Prévoyance Organisation, Commandement, Coordinators, Controle,* appeared in 1916.

Thomas Cook and the American Blanket Trade in the Nineteenth Century

Dominance of the American blanket trade was obtained and held for half a century through a combination of aggressive marketing, progressive manufacturing methods, and far-sighted administration of a business beset by constant difficulties, part of which were peculiar to the times; part familiar to business in every age and circumstance.

by Frederick J. Glover

FULBRIGHT VISITING ASSOCIATE PROFESSOR OF ECONOMICS AT THE COLLEGE OF WILLIAM AND MARY

Thomas Cook became an entrepreneur in his twenty-fifth year when, in 1811, he joined his uncle, John Hague, and his cousin, Edward Hague, in partnership at Dewsbury Mills in the West Riding of Yorkshire.[1] The initial contribution which Cook made to the financial and technical resources of the new

[1] John Hague, a Dublin merchant, had family and business links with Yorkshire. In 1811 he purchased the Dews-

enterprise was very modest. Of the original partners' capital of £15,000, Cook subscribed only some £3,000. He had drawn this down to a mere £268 by the end of 1819, and, thereafter for a few years, he had no significant financial stake in the business.[2] He possessed little knowledge of the working of wool in any of the manufacturing processes and seems to have enjoyed only the slenderest of formal education.[3] He had, however, been apprenticed to his father, John Cook, who was the junior partner in the firm of Hague, Beaumont and Cook, wool and woolen cloth merchants, trading at Fishamble Street, Dublin, and his later activities suggest that this apprenticeship was a thorough, diligent, and energetic process, and that upon this foundation he was able to mold himself into "the complete business man."[4] He seems to have inherited very little in the way of property from his father, and it is likely that much of his initial £3,000 which he invested at Dewsbury Mills came into his hands in the form of a dowry when, in 1811, he married Ellen Wormald, daughter of Thomas Wormald, a landowner of Gomersal.

In the first four years of their operations, Cook and his partners engaged in woolen yarn processing – scribbling, carding, slubbing and spinning – on a commission basis for the domestic clothiers of the Calder valley, and they also provided cloth fulling facilities for hire. At the same time, they bought quantities of finished and unfinished blankets and heavy cloths which they then marketed in Dublin or sold to the merchants of Leeds and Huddersfield.

By 1815, Cook had acquired an extensive and intimate knowledge of the prevailing woolen manufacturing techniques in the West

bury Mills Estate, adjacent to the River Calder and situated one mile southwest of the town of Dewsbury. The purchase consisted of an extensive area of land, two fulling mills, and a number of buildings which had formerly been used for woolen yarn processing. The major advantage of this location resided in the availability of the water power, and water wheels were employed as prime movers at Dewsbury Mills throughout the nineteenth century. John Hague then leased the Estate to the newly formed partnership of Hagues and Cook, of which he was the senior member, but from the beginning he seems to have given Thomas Cook his head in determining business policy.

[2] Hagues and Cook, *Balance Sheets*. The records of the firm, consisting of journals, plans, inventories, legal documents, some fragmentary financial papers, and 175,000 copy letters are the property of the present firm of Wormalds and Walker, Ltd., of Dewsbury. These records are at present housed in the Brotherton Library of the University of Leeds and they form the basis of the present writer's two-volume work, "Dewsbury Mills," an unpublished Ph.D. thesis, University of Leeds, 1959. I am much indebted to Professor A. J. Brown and Dr. E. M. Sigsworth for their encouraging interest in my researches; and also to Mr. William Wormald and his fellow directors of the firm of Wormalds and Walker, Ltd., for their helpful cooperation.

[3] "I know very little of grammar or of grammar books, being taken from a poor school at 13½ years old." Thomas Cook to Frank Wormald in a letter dated April 24, 1830.

[4] Cook fits almost exactly the colorful description of the early nineteenth-century businessman in England given by Charles Wilson in his article, "The Entrepreneur in the Industrial Revolution in Britain," *Explorations in Entrepreneurial History*, vol. VII (1955), pp. 129–145. For a general discussion of the education of merchants see W. R. Minchinton, "The Merchants in England in the Eighteenth Century," *The Entrepreneur, papers presented at the Annual Conference, Economic History Society, Cambridge [England], 1957.*

Riding and had gained a comprehensive view of the mercantile practices and arrangements which were then characteristic of the Yorkshire trade.[5] In that year the partners commenced direct manufacturing of cloths for themselves. Wool was purchased and processed into yarn at the mills, and put out for weaving to local craftsmen working in their own homes on their own looms, or on looms owned by the partners. It was then returned to Dewsbury Mills in the form of woven pieces for dyeing and finishing. By achieving this degree of integration in the separate operations of manufacture, Cook, like other Yorkshire merchant-manufacturers, gained a greater measure of control over his costs of production. This in turn led him to seek economies in merchandising and to widen his marketing horizons. The American market for blankets and medium-priced woolen cloths, which was opening up again for British exporters after Waterloo, offered to Cook a powerful attraction, coupled with some risks.[6]

The American Market

Cook was indirectly exporting blankets to the American market through English merchant houses in 1816, but in that year he also began to venture small consignments of goods directly to the United States in an effort to form some independent trading connections with American importers. By 1821, he had established a reputation for reliability of manufacture with a small number of American houses, and he was able to record in his diary in that year:[7]

> **Mr. Dunn and Mr. Jones from Philadelphia gave us an order this day for £1,300 value in Blankets – they spent the evening with us.**

Visiting merchants from across the Atlantic were thus finding their way to Dewsbury Mills and were willing to place orders for goods, but the consignment of cloths did not usually lead to the formation of many durable business relationships, for the fate of many speculative exports of textiles from the West Riding was that of being

[5] The standard works dealing with the West Riding woolen industry for this period are Herbert Heaton, *The Yorkshire Woollen and Worsted Industries* (Oxford, 1920); W. B. Crump, *The Leeds Woollen Industry, 1780–1820* (Leeds, 1931); W. B. Crump and G. Ghorbal, *History of the Huddersfield Woollen Industry* (Huddersfield, 1935); but see also, Frederick J. Glover, "Dewsbury Mills," especially chaps. I, IV, and V.

[6] Benjamin Gott, of course, was the outstanding pioneer in "merchant-manufacturing" in the West Riding woolen industry. See Herbert Heaton, "Benjamin Gott and the Industrial Revolution in Yorkshire," *Economic History Review*, vol. III (1931), pp. 45–86.

[7] Thos. Cook, *Diary*, Aug. 23, 1821. This diary was kept by Cook only for the period May, 1819, to Jan., 1823, when general pressure of work at the mills seems to have forced its discontinuance.

"auctioned," often at considerable loss.[8] Cook responded to this market uncertainty by seeking the services of a reliable foreign representative who could provide him with firm and regular orders for goods and, for as long as speculative consignments were necessary, to handle the partners' affairs profitably.[9] In 1821, Cook stated that he had written to: [10]

> **Thomas Dixon and Company of New York offering . . . a commission to do our business there and to guarantee the debts.**

In the following July, "T. Dixon of New York called at Dewsbury Mills" [11] and the agency arrangements between the parties were satisfactorily settled. From this time until the late 1830's, Dixon conducted the business affairs of the partners in the American market, supplying them with intelligence, orders, and remittances in respect of shipments made to his care. Dixon's position in the American trade was that of an agent functioning mainly on behalf of Yorkshire merchants, but he also acted on behalf of some of the important American importing houses, notably the firm of C. H. Russell and Company of New York.[12]

Besides soliciting business for the partners, Dixon also agreed to carry a stock of up to £5,000 worth of blankets in New York from which he would make sales at opportune times. He was instructed to remit the sales proceeds home in the form of bills of exchange or in American produce, according to his judgment of likely movements in the foreign exchange rate.[13] In return he was to receive a commission of 3 per cent on the sales value of all transactions which he initiated in the American market. In March, 1823, Cook wrote to him: [14]

> **. . . we have sent to you orders to invest *all* our money in Cotton. We like quick returns, but not to pay too high for them. We have no objection to employing a certain capital in this New York trade and, as you make returns, shipping again to the same amount, in goods assorted as you may point out to us.**

[8] For a general discussion of the "auction" system and of Anglo-American trade in woolen fabrics in the period 1815–1840, see A. H. Cole, *The American Wool Manufacture*, vol. I (Cambridge, Mass., 1926), especially pp. 156–160.

[9] The risks and dangers of the consignment trade after 1815 are well reviewed by L. H. Jenks, *The Migration of British Capital to 1875* (New York, 1938), especially chap. III.

[10] Thos. Cook, *Diary*, Dec. 3, 1821.

[11] *Ibid.*, July 27, 1822.

[12] Thomas Dixon was probably a member of the Dixon family which emigrated to the United States from the West Riding in 1815. See Herbert Heaton, "Yorkshire Cloth Traders in the United States, 1770–1840," *Thoresby Society Journal*, vol. XXXVII (1941).

[13] The whole story of the mechanism of Anglo-American trade and its functioning is illuminatingly told by R. W. Hidy in his *The House of Baring in American Trade and Finance* (Cambridge, Mass., 1949). See especially chaps. III and IV.

[14] Hagues and Cook to Thos. Dixon, New York, March 23, 1823.

In the same letter, Cook impressed upon Dixon that "profit is the end of business," [15] and later in that year he was writing: [16]

> **We see it is necessary to keep to a low article if any profit is to be made, and next year unless you direct us to the contrary, we shall send the goods of a low, or light make.**

This demand for cheap, low-quality blankets proved to be the basis of the substantial American trade which Cook built up after 1824. As Dixon introduced American importing houses to the firm and they were proved prompt in payments, Cook developed separate ordering arrangements with them (including the extension of credit to the most reliable houses), and any firms ordering goods from the partners without an introduction from Dixon were asked to provide the name of a guarantor in England: [17]

> **It is not our practice to send any goods to America which are not guaranteed to us to be paid when due by some English house.**

N. S. Buck has emphasized the energetic methods by which British manufacturers sought to market their products in the United States after 1815 and the consequent strengthening of the English commission merchants in the trade.[18] For the Yorkshire manufacturers possessed of small capital, such merchants were vital to their survival in the export trade, as they often furnished the manufacturer with cash payment as soon as proof of shipment was forthcoming. The capital employed by Cook and his partners at Dewsbury Mills was large enough, however, to allow them to deal more directly with American importers. This proved a decisive advantage, especially after 1830, when American merchants became more important in the trade than they had been previously.

Dixon's purchases of cotton were reasonably successful for the partners during the period 1823–1824, but in May of 1825 Cook was moved to advise Dixon that "money cannot be safe to come home in cotton" [19] and he stressed the necessity of remitting by means of good bills drawn on London or Liverpool houses. Cook was also concerned about the length of time which elapsed between shipments and the receipt of remittances in this trade when recourse

[15] This unequivocal statement of Cook's business motives occurs repeatedly throughout the firm's correspondence books and portrays Cook as almost a textbook entrepreneur.

[16] Hagues and Cook to Dixon, Nov. 4, 1823.

[17] Hagues and Cook to Colburn and Holbrook, Charlestown, March 31, 1823. I have explored Cook's trading relationships with Philadelphia importers in my article, "Philadelphia Merchants and the Yorkshire Blanket Trade, 1820–1860," *Pennsylvania History*, vol. XXVIII (1961), pp. 121–142.

[18] N. S. Buck, *The Development of the Organisation of Anglo-American Trade, 1800–1850* (New Haven, 1925), especially p. 99 *et seq.*

[19] Hagues and Cook to Dixon, May 11, 1825.

was not made to the commission merchants. Dixon was informed that: [20]

> **It will be necessary that you remit to us in the course of the summer, as the large consignments you have recommended us to make (and the whole of which are cash out of pocket from the day of buying the wool) joined to what money you hold of ours, will together make an amount larger than we care for or than will be convenient perhaps to have lying over with you till the spring.**

By prudent attention to the credit status of his customers and to the information received from and the remittance policy pursued by Dixon, Cook endeavored in the 1820's to minimize the risks and enlarge the profitability of the American market. His success in achieving these aims is roughly indicated by the profits of the partnership (shown for selected years in Table I), and it is

TABLE I

HAGUES AND COOK, PROFITS AND LOSSES FOR SELECTED YEARS [a]

Year	Partners' Capital	Profits	Losses
	£	£	£
1812	15,083	3,250	—
1816	31,718	—	2,089
1819	38,855	—	1,301
1824	28,943	6,436	—
1825	35,886	3,867	—
1827	42,781	4,394	—
1829	39,460	1,219	—
1830	33,734	7,019	—

[a] The invested capital of the partners fluctuated from year to year as a result of the withdrawals of the partners and the plowing back, particularly by the Hagues, of profits. The increase in capital between 1812 and 1816 is chiefly explained by increased investments from the Hague family.

clear from the firm's correspondence that the fluctuations in profits during the 1820's were largely produced by the vicissitudes of the American trade. The buoyancy of trade in 1824, the crisis of 1825, and the depression of the later 1820's followed by the recovery of the early 1830's can all be traced in the firm's profit and loss accounts and in the letter books.

The year 1825 was a severe test for Cook and his partners in their

[20] Hagues, Cook and Wormald to Dixon, March 22, 1825. John Wormald, a relative of John Hague and a member of the London banking house of Child and Company, joined the partnership in 1824 with an investment in the enterprise of £20,000. He took no active part in the business.

American trade, but Dixon guided them through the crisis with rare skill and toward the end of that year Cook was able to write: [21]

> . . . considering the great extent of our mercantile affairs we are apparently very fortunate, not having – Hibberson excepted – a penny of loss.

Early in the following year, however, Cook was writing much more dramatically on the state of business: [22]

> Send us home what money you have of ours . . . you will have heard of the state we are in, in England, it beggars description . . . everything not highly taxed is falling rapidly in price . . . one hundred country banks stopped last month. . . .

Early in 1826, Cook was soliciting business from the merchant house of A. and S. Henry and Company of Manchester: [23]

> Try us fairly with your orders, and if we do not give satisfaction we will never ask another order of you. We can and will use you so as no other house can do better. . . .

and a little later he was writing to Dixon in a cautionary mood: [24]

> We do not think it will be safe to send you this year so many goods as we did last, you must, we think, participate in the great money distress there [as] here.

Faced with these conditions, Cook was seeking to reduce his marketing risks and to increase his competitiveness. A consistent downgrading of quality and the consequent reduction in price enabled Cook to maintain the demand for his fabrics. This was achieved by the use of large quantities of cheap, foreign wool (mainly drawn from Germany and Russia, but also from South America, Turkey, and Iceland) which was skillfully blended before the scribbling process. In addition, cheap dyeing operations were employed. The resulting finished products offended Cook's aesthetic tastes and standards of craftsmanship, but they passed the market test: [25]

> . . . the veriest rubbish latterly we are told has done the best. Indeed goods have been and are made now hateful to look at by those who recollect what formerly went to America.

[21] Hagues, Cook and Wormald to Brown and Company, Liverpool, Dec. 12, 1825. Hibberson's bad debt amounted to £623.
[22] Hagues, Cook and Wormald to Dixon, Jan. 20, 1826.
[23] Hagues, Cook and Wormald to Alexander Henry, Manchester, Feb. 28, 1826. For the story of "the Henrys" in the American trade see *Fortunes Made in Business*, vol. III (London, 1884), p. 201 *et seq.* Cook established an association with this house which lasted until the 1860's.
[24] Hagues, Cook and Wormald to Dixon, July 5, 1826.
[25] Hagues, Cook and Wormald to J. C. Jones, Philadelphia, July 21, 1825.

In responding to market conditions in this manner, Cook was participating in the trade drive of Yorkshire manufacturers to capture and retain overseas markets for their products in the 1820's, an export effort which does not seem to have lost its momentum until the 1860's. In blanket manufacture, Cook was a pioneer in the ingenuity and versatility with which he employed "every artifice . . . to produce articles of seducing cheapness"[26] for the American market, but his methods were quickly emulated by his Yorkshire rivals.

Tariffs and Protection

In 1828, the American tariff rates on imported woolen goods were drastically increased and for the first time provided strong protection for the domestic manufacturer.[27] For blankets, worsteds, and cheap cloth, valued at not more than 50 cents per square yard, the ad valorem duty was fixed at 33⅓ per cent. The major innovation in the legislation was the introduction of the principle of the "minimum valuation" which categorized yard goods into ranges of value and levied duties on the highest value of each range. It was not surprising that there followed an episode, lasting for four years, which Heaton has analyzed in some detail,[28] of ingenious and often deceitful trading practices, such as invoice manipulation and the ambiguous description of goods. By these means, the Yorkshire manufacturers continued to pour into the United States a flow of products bearing the lowest possible duty compatible with the now complicated tariff regulations. Perhaps the most significant effect of the 1828 tariff legislation upon the West Riding producers was the one which was the most unintended by the framers of the new schedules; the Yorkshiremen were forced to become acutely price conscious, to examine their costs of production with minute care, and to experiment with different qualities of wool and diverse weaves, colors and finishes, in order to "beat the tariff." In sum, their competitiveness was sharply stimulated. Thomas Cook not only accepted but was exhilarated by the stimulus.

Cook gave evidence before the Lords' Committee on the state of the British Wool Trade in 1828, and when questioned upon the

[26] The phrase is V. S. Clark's in describing British export successes in the 1820's in his *History of Manufactures in the United States*, vol. I (New York, 1929), p. 361.

[27] The new impositions were the outcome of a complex debate between the protectionist northern states and the free-trade southern states, and the rival interests of the domestic wool growers and the manufacturers.

[28] Herbert Heaton, "Yorkshire Cloth Traders . . . ," especially pp. 275-279.

effect of tariffs upon his exports to the United States his view was that: [29]

> **Blankets are an article they [the Americans] have not got on so fast in the manufacture of; they have not increased the manufacture of them so much as that of cloth.**

He repeated this point of view when writing to one of his largest customers in Philadelphia: [30]

> **The passing of the American Tariff will help the goods in your hands, but we shall not add to the quantity you have until we have your instructions to do so . . . it does not appear to us that there will be any diminished demand for blankets from you until you can manufacture more for yourselves.**

At first sight, it seems surprising that the American woolen manufacturers could not seriously compete with British blankets behind a tariff barrier set as high as 33⅓ per cent ad valorem. Blankets were relatively unsophisticated in design, manufacture, and finish compared with other woolen textiles, and almost any quality of wool could be utilized in their production. Furthermore, the success of American producers in flannel manufacture suggests that there were few technical difficulties retarding the development of the domestic blanket trade, other than that of weaving on broader looms.[31] Professor A. H. Cole has discussed the causes of American backwardness in this branch of the domestic wool textile industry, and a careful reading of the correspondence books of Hagues and Cook indicates that his reasoning is well supported by the views held in Yorkshire on this aspect of the trade.[32]

Two factors, wool supply and wool tariffs, were vital in the writing of the success story of Yorkshire blankets in the American market in the first half of the nineteenth century. The supply of native, low-quality wools in the United States was diverted, during this period, to the production of medium-priced cloths rather than blankets, which were generally made from the coarsest wools. There were also deficiencies in the foreign supplies of suitable blanket wool available to the American manufacturer, due partly to imperfections in the organization of trade in imported wool and partly to the fact that the coarse wools which were imported often contained burrs and other impurities which were difficult to eliminate in the course of manufacture by techniques then practiced. By

[29] *Report from the S. C. of the House of Lords on the State of the British Wool Trade*, 1828 (515) viii, p. 214.
[30] Hagues, Cook and Wormald to J. Oakford, Philadelphia, June 24, 1828.
[31] Flannels were seldom woven more than 30 inches in width.
[32] See A. H. Cole, *The American Wool Manufacture*, vol. I, especially pp. 202–204.

contrast, the British blanket makers profited from a good domestic supply of coarse wool augmented by the flow of cheap fibers from the Continent and elsewhere, much of which was received at the mills in a clean condition. Added to this, the West Riding producers were also served with a plentiful supply of noils as a by-product of the combing process in the worsted industry, an advantage which was denied to the American manufacturer. For this reason, Thomas Cook evinced a lively interest in the Bradford worsted trade at all times: ". . . very little wool is being combed at Bradford at present, which makes noils keep their prices." [33]

In 1816, tariffs were levied for the first time on raw wool imported into the United States, the rates of duty being further increased in 1825–1826. In 1828, the duty on wool was fixed at 4 cents per pound plus an ad valorem levy of 40 per cent, which was raised soon afterwards to 50 per cent. The flat rate element in this kind of tariff impinged particularly heavily on the cheaper wools and constituted an annoying imposition upon the domestic manufacturers, effectively neutralizing any advantages they might have derived from the tariffs levied on blanket imports.[34] Furthermore, in respect of the very cheap woolens, for which there was a high demand in the southern states, the variety of design and color employed by West Riding makers and the prejudice which existed among American consumers in favor of "foreign" importations sustained the export of such goods from Yorkshire at a high level.[35]

American tariffs were revised again in 1832–1833, the new legislation removing many of the "abominations," including the minimum valuation system. From this time until 1861 the tariff level tended to fall, further legislation encouraging to this trend being introduced in 1846. Thomas Cook, however, like many of his Yorkshire competitors, was more concerned with changes in demand stemming from the convolutions of the trade cycle than with the activities of the customs officer. His interest in cost-reducing processes, in production of cheaper fabrics, and in the strengthening of marketing policy, remained undiminished.

Boom and Slump

In 1830 Cook persuaded his partners to review their pricing methods. In that year the firm revised drastically its ideas of what

[33] Thos. Cook to C. H. Russell, New York, Nov. 22, 1829.

[34] There was no tariff levied in Britain on imported Colonial wools after 1825 and in that year the tariff on cheap foreign fibers was reduced to a nominal ½d. per pound. It remained at this level until its final abolition in 1844.

[35] The appeal to patriotism was not yet a "respectable" tariff argument in either the United States or Britain.

constituted a "normal profit" and began vigorously to follow a policy of reduced profit per unit of output as a means of expanding sales and maximizing total profits. It is difficult to determine whether Cook was the first to introduce this innovation into the highly com-

TABLE II

HAGUES, COOK AND WORMALD,
CAPITAL AND PROFITS, 1830–1861 [a]

Year	Partners' Capital	Profits
	£	£
1830	33,734	7,019
1831	40,871	4,247
1832	41,234	3,800
1833	42,711	7,600
1834	44,579	1,600
1835	46,872	11,000
1836	73,477	14,400
1837	85,418	2,522
1838	73,234	7,400
1839	83,666	3,589
1840	83,056	3,600
1841	85,806	4,400
1842	88,991	3,351
1843	89,464	5,000
1844	94,088	7,200
1845	88,863	7,600
1846	93,934	3,600
1847	76,897	4,233
1848	68,238	7,800
1849	60,966	10,500
1850	69,722	10,500
1851	80,102	7,350
1852	90,193	10,000
1853	95,635	27,121
1854	109,218	27,411
1855	115,334	19,292
1856	120,886	14,762
1857	114,088	11,084
1858	112,838	16,171
1859	118,931	17,772
1860	121,413	18,984
1861	121,884	15,828

[a] Hagues, Cook and Wormald, *Balance Sheets*. (See also Table I.) This table illustrates the single-mindedness with which Cook and his partners plowed back their profits in the cause of growth. The large increase in capital in 1836 is explained by the partners withdrawing from a country banking enterprise and placing their funds in the blanket trade. In calculating their "profits" the partners did not employ any consistent method of allowing for depreciation.

petitive West Riding trade, but certainly he seems to have been one of the earliest adherents to what might be termed *the Yorkshire principle* of small unit profits and large sales. This change of market strategy appears to have paid handsome dividends for the partners in 1830, and more particularly in the mid-1830's, when the firm's gross profits were more than twice as high as the best comparable figures recorded in the 1820's (Table II). An examination of the course of blanket exports from Britain to the United States shows that the market was becoming generally more favor-

TABLE III

EXPORTS OF BLANKETS FROM THE UNITED KINGDOM, 1815–1870 [a]

(In millions of yards)

Year	To all Countries	To the U.S.A.	Year	To all Countries	To the U.S.A.
1815	3.4	2.7	1843	1.7	.9
1816	1.9	1.3	1844	3.3	2.3
1817	2.3	1.4	1845	2.4	1.2
1818	2.7	1.9	1846	2.2	1.0
1819	1.8	1.1	1847	—	—
1820	1.3	.6	1848	4.1	3.1
1821	1.4	.8	1849	5.7	4.1
1822	1.9	1.2	1850	6.4	4.6
1823	2.1	1.1	1851	5.7	3.9
1824	2.0	1.1	1852	9.8	6.7
1825	2.2	1.3	1853	9.8	6.6
1826	1.1	.6	1854	9.4	6.6
1827	1.9	1.2	1855	5.0	2.9
1828	2.1	1.1	1856	7.2	4.6
1829	1.8	.9	1857	8.1	5.4
1830	2.2	1.3	1858	5.8	3.6
1831	2.5	1.8	1859	9.5	6.4
1832	1.7	.9	1860	8.6	5.8
1833	3.1	2.2	1861	8.8	5.2
1834	2.5	1.4	1862	—	—
1835	3.1	2.1	1863	8.7	2.6
1836	4.3	3.1	1864	7.9	2.8
1837	2.4	1.3	1865	6.7	2.8
1838	2.6	1.5	1866	5.9	1.0
1839	3.1	2.0	1867	3.5	.1
1840	2.2	.7	1868	4.7	.05
1841	2.1	.9	1869	6.3	.09
1842	1.4	.5	1870	6.8	.07

[a] Information from *Parliamentary Papers* and *U. K. Trade and Navigation Accounts.* The foreign trade records dealing with British wool textiles in 1847 were destroyed, while the information on blanket exports in 1862 is not available in a comparable form with the rest of the data.

able in the 1830's (see Table III), but Cook was convinced that the change in pricing policy was the major explanation of profit improvement for his firm: ". . . what was our trade until 1830, when we resorted to low profits – worth nothing!" [36]

Evidence compiled by Cook, with the aid of Dixon, reveals that during the 1830's the partners acquired a large share in the export trade in blankets to the United States (Table IV).

TABLE IV

Imports of Blankets from All Sources into the U.S.A., by Value [a]

Year	From France (I)	From Great Britain (II)	Other Imports (III)	Total (IV)	From Hagues, Cook and Wormald (V)	Column V as a % of Column IV (VI)	Column V as a % of Column II (VII)
	£	£	£	£	£		
1833	20.733	241,373	712	262,818	118,492	45	49
1834	27,074	212,332	76	239,482	103,175	39	94
1835	29,647	389,536	—	419,183	161,370	38	41
1836	49,497	445,620	513	495,630	184,730	37	41
1837	26,024	180,454	—	206,478	80,586	39	44
1838	—	—	—	—	64,770	45	60

[a] This table contained in a letter from Cook to Thos. Dixon, Jan. 8, 1839. Dixon supplied Cook with American import figures extracted from the Congressional Returns. The percentages shown for 1838 were estimates made by Cook. Dixon ceased to act for the partners upon his retirement from business in that year and thereafter the house of W. H. Russell and Company became the principal agents for the firm in New York.

It is noticeable that this share was greater in years when total demand for blankets was slackening than it was when demand was buoyant. This is explained by the fact that Cook found his productive capacity extremely stretched in times of boom, while in periods of slump his competitiveness and mercantile strength enabled him to retain his dominance in the market. The correspondence books throw much light on these issues.

In 1834, the profits of the partnership sank to an extremely low point and Cook was complaining that "The trade will not give prime costs for goods." [37] Of the American market he indicated that: [38]

> **What we have had this year has all come since Whitsuntide . . . we lost more than half the year's profit in countermanded orders.**

[36] Hagues, Cook and Wormald to Robert Nicholson, London, Feb. 4, 1839. Nicholson acted as London agent for the partners. The profit per unit of output was reduced from 10 per cent to 2½ per cent of total production costs when the new price policy was introduced.

[37] Thos. Cook to W. H. Russell, New York, July 14, 1834.

[38] Thos. Cook to Jones, Gibson and Ord, Philadelphia, Dec. 8, 1834.

And he was convinced that he was losing ground in the face of foreign competition. He was urging Dixon: "Could you not obtain for us quickly . . . samples of those commoner French goods." [39] In the following two years, however, Cook was coping with boom conditions and his letters are full of references to the shortage of manufacturing capacity, the decline in standards of workmanship, and to the temporary shortage of liquid capital. In 1835 he was writing: ". . . we have £50,000 worth of goods to send away before we get much money." [40] In this year he estimated that 30 per cent of the blanket trade of the West Riding was in his hands,[41] and he was thus in a good position to comment on the state of the trade. Of the smaller Yorkshire clothiers, from whom he bought blankets to augment his own production, he observed: "I never saw men so puffed up by eight weeks trade in all my life." [42]

On workmanship he commented: "Goods are never put up well in these hurries," [43] and, ". . . we have our men to pamper like spoiled bairns." [44] As the boom subsided, his opinion was that "The business done this year has been monstrous in quantity and infamous in its management." [45] This concern with the standards and quality of manufacture illustrates Cook's attachment to the cause of profit maximization over the long period, rather than to the attainment of quick, speculative gains whenever the American market was favorable. In 1835, he told a correspondent: [46]

> **I never expect to see a demand like this again . . . but we must not throw our old customers overboard.**

In this year he toured the "heavy woolen" district of Yorkshire, buying blankets when he could and adding a 2½ per cent profit margin to his purchasing costs before invoicing these to his customers. He put out wool and yarn to nearby mills for fabrication into cloth, but was often disappointed with the finished products. He also tried to ease the strain on his own capacity by diverting orders to Witney, but he found the makers there working to their limits.[47]

[39] Thos. Cook to Dixon, Dec. 28, 1834.
[40] Thos. Cook to John Wormald, London, Feb. 20, 1835.
[41] Information contained in a letter from Cook to John Addams, Manchester, May 2, 1835.
[42] *Ibid.*
[43] Thos. Cook to R. T. Horner, Leeds, May 7, 1835.
[44] Thos. Cook to John Chadwick, Rochdale, May 24, 1835.
[45] Thos. Cook to Nicholson, Sept. 20, 1836.
[46] Thos. Cook to A. and S. Henry and Company, Manchester, April 30, 1835.
[47] The experiences of the Witney blanket industry in the nineteenth century have received little attention from economic historians, but see A. Plummer, *The Witney Blanket Industry* (London, 1934).

Toward the end of the year, he reported to the Henrys on the West Riding situation: [48]

> . . . there is not a loom in the trade out of work . . . at full stretch we have been making £3,000 worth of blankets per week.

Cook's view of the avalanche of orders from the United States was that it was clearly a short-run phenomenon. During 1835 and 1836, he continued striving to meet what he regarded as a strong competitive challenge from French blanket makers (see Table IV), particularly by copying their designs and reproducing their trade labels: [49]

> We could manufacture more of these French blankets, but they require a peculiar gear of which we have not yet a full suit for all our looms.

But his chief innovation at this time was that of the introduction of the cotton warp combined with a woolen weft as an alternative to the all-wool fabric: [50]

> We now manufacture some goods with a cotton warp, the difference in the cost arises in the warp only . . . and will cheapen the goods by 6–8 per cent.

The resulting blankets were not only cheaper, but lighter in weight, different in texture, stronger in use, and more varied in design. Cook's greatest difficulty in manufacturing these new cloths arose in the dyeing process, since the combined animal and vegetable fibers responded erratically to the application of colors. Cook solved this problem during the 1840's and incidentally improved the general quality of his dyeing operations for fabrics of all kinds. The extensive use of the cotton warp in Yorkshire was a developing feature of the Bradford worsted trade in the late 1830's, but Cook seems to have been one of the earliest entrepreneurs in the West Riding to employ it successfully in the woolen branch of the trade.[51] The increasing use of cotton warps in the 1840's also enabled Cook to solve a major technological problem in weaving. It is well known that the power loom made its way into the woolen manufacture only slowly in the first half of the nineteenth century, as contrasted with its rapid conquest of the worsted industry, mainly due to the strain that power mechanisms imposed upon the comparatively

[48] Thos. Cook to A. and S. Henry and Company, Oct. 28, 1835.
[49] Hagues, Cook and Wormald to Alexander Henry, Jan. 8, 1836. The French designs were very popular in the New Orleans trade.
[50] *Ibid.*
[51] Benjamin Gott was experimenting with cotton-warped or "union" cloths in the early 1820's, but they seem to have been chiefly undyed fabrics. See Crump, *The Leeds Woollen Industry*, p. 55.

fragile and delicate yarn. This difficulty was accentuated in the blanket manufacture where very broad looms were employed. The use of cotton, however, strengthened the web and facilitated the movement of the power-driven shuttle. The installation and subsequent favorable use of power looms at Dewsbury Mills in 1844 were thus major technical achievements for Cook and for the "heavy woolen" district of Yorkshire in general.

The fall in demand for blankets, which Cook had anticipated during the boom, came in 1837 when the partners found their trade with the United States cut by nearly a half compared with the previous year (Tables III and IV). This proved to be the beginning of a serious depression in the trade which did not reach its pessimum point until 1842, although 1839 promised the hope of an early recovery.[52] During these years Cook was being urged to resort to consignments as a means of improving his sales in the United States, but he was not to be persuaded. When orders did arrive at Dewsbury Mills he quickly distributed as much work as he could among his smaller rivals, which suggests that he not only possessed an active social conscience but that he was also interested in maintaining the productive capacity of the industry. Like other outstanding entrepreneurs, Cook had a business outlook which extended beyond his own enterprise. This was unmistakably evident in times of adversity. Cook, however, found the competition from the small makers very severe during this period, and although he was writing to a London merchant: "It does not appear at all probable that any house can furnish blanket goods on terms cheaper than ours, quality being equal . . ." [53] he was much concerned with the way in which the domestic clothier responded to the contraction in demand by reducing the remuneration asked for his labor, a reduction in prime costs which Cook found was much more difficult to achieve.[54]

At the beginning of 1843, Cook was becoming very depressed with the prolonged slackness of trade: [55]

> **Our trade is very bad still and we have had over six years of it . . . we despair of any recurrence of a trade again to give full employment to our population.**

[52] See R. C. O. Matthews, *A Study in Trade-Cycle History* (Cambridge, 1954), especially pp. 152–155. See also R. McGrane, *The Panic of 1837* (Chicago, 1927).

[53] Thos. Cook to John Cryder, London, April 2, 1838.

[54] This "advantage" enjoyed by small entrepreneurs over employers of labor has been found characteristic of many industries at different times in different places. See, for example, J. D. Phillips, *Little Business in the American Economy* (University of Illinois Press, 1958), especially chap. V; and J. Steindl, *Small and Big Business* (Oxford, 1945).

[55] Thos. Cook to Robert Barbour, Liverpool, Jan. 9, 1843.

But the advantages of capital strength and trading connections, which the partnership had acquired since 1815 under Cook's leadership, carried the firm safely through the depression. The size of the partners' resources (Table II) enabled them to withstand successfully "the severe money pressure" of 1837 and to avoid credit entanglements. Profits, although small in relation to capital employed, did accrue to the enterprise during this time, and the reputation and esteem enjoyed by Cook and his colleagues prevented the firm from suffering that "misery and destruction of property" [56] which might have resulted and did so result for many smaller or less prudently conducted enterprises.

Prosperity and Consolidation

Emerging from the depression in 1843, the blanket trade shared with other branches of Anglo-American economic activity a painfully slow recovery in the mid-1840's, a financial panic in 1847, and thereafter a steady climb into the prosperous decade of the 1850's. Cook and his partners found that both price and product competition were strong throughout the period. In meeting the former challenge, especially from the house of Benjamin Gott and from the large mercantile firms in Leeds, Liverpool, and Manchester, that bought blankets from his manufacturing rivals in the Dewsbury district, Cook kept a keen eye on his technical efficiency. We have noted that he was alert to the advantages to be derived from power weaving, once its feasibility was demonstrated in association with the cotton warp, and he also displayed a tenacious determination to eliminate the process of hand-slubbing in the making of yarn. He was experimenting with "condensing" machines in the 1830's and he continued to try almost every new patented device in this field until he had mastered the problem, in the 1850's, ahead of many of his rivals.[57] In 1842, he instituted mechanical gig-raising, which was an innovation in the Dewsbury area, and he was an early enthusiast of the steam-heated drying chamber to replace outdoor tentering and to eliminate dependence upon the vagaries of the weather.

Probably the greatest cost economies effected by Cook were gained in wool buying; his judgment of the fiber and of markets and men was remarkably sure and consistent. Cook attempted to

[56] Cook's description of the effects of the depression on some of his business associates was contained in a letter dated May 15, 1841.

[57] Cook was using a copy of the American invention, "Goulding's condensing device" in 1834.

minimize the impact of volatile wool prices by buying large amounts of wool in December, "during the dead season of the year." During the 1840's and 1850's, his average wool stock at Dewsbury Mills at each year end, by value, was of the order of £20,000.[58] He bought wool from local staplers and direct from farmers, he visited the major wool markets in London and Liverpool, and he imported wool direct – from Russia beginning in the early 1830's and from Australia beginning in the late 1830's. In all these transactions, Cook was intent on minimizing the commission charges and handling costs, which augmented wool prices for many manufacturers. A frequent observation in his correspondence was the assertion that "We do not wish to purchase wool at second-hand when we can get it at first." [59]

With respect to product-competition, Cook was untypical of the Dewsbury trade in that he refused to engage in the development of "shoddy" cloths, which became a characteristic product of this region of the West Riding after 1840.[60] Design, color, finish and "excellence of manufacture" were the qualities which Cook relied upon to retain his American customers. A surviving price list, dated June 12, 1843, reveals the range of production under Cook's control at this time. Blankets were produced in 36 different sizes, 24 qualities, and in a great variety of colors, and they were available at 172 different prices from 9 pence to 42 shillings per blanket. Compared with the modest manufacturing achievements of the partners in 1815, the evidence provided by this price list alone is indicative of substantial economic growth. From the early 1840's until the outbreak of the American Civil War, Cook was able to maintain a regular yearly sale of £100,000 to £150,000 worth of blankets in the United States and to lift his gross profits from an average of £5,700 per annum in the 1840's to an average of £16,000 per annum in the 1850's, a surplus of 6 to 10 per cent on the value of sales and 5 to 10 per cent on the capital employed.[61] These figures do not indicate any startling profit achievement, taking account of the risks involved in the trade, but in the competitive environment in which they found themselves during these years the partners regarded their profit rate as highly satisfactory.[62] The buoyant de-

[58] Hagues, Cook and Wormald, *Private Ledgers*. The wool element constituted slightly more than 50 per cent of the total selling cost per blanket.

[59] Thos. Cook to Nicholson, Dec. 18, 1832.

[60] For the "shoddy" story see the percipient little work by S. Jubb, *History of the Shoddy Trade* (Batley, 1860).

[61] See Table II.

[62] On this point it is perhaps worth stressing that spectacular rates of profit were not crucial to the development of entrepreneurship in Britain in the first half of the nineteenth century.

mand for blankets showed little sign of diminution for the partners until the harsh impositions of the Morrill tariff legislation of 1861 finally swept away the comparative cost advantages which they had enjoyed for nearly half a century in the American market.

The tariff levy on imported woolens, in 1861, was 24 per cent ad valorem at American ports of entry, but the Morrill provisions raised this to 25 per cent ad valorem plus 12 cents per pound weight of the fabric. As blankets were heavy cloths in general, the new tariff was a severe one, but further changes between 1861 and 1867 raised the duty to 35 per cent ad valorem plus 50 cents per pound weight. These penal rates of tax were successful in extinguishing the Anglo-American blanket trade, as may be seen in Table III, but the full impact of the Morrill regulations, which Cook described as "quite prohibitive of our goods,"[63] was not felt in the West Riding until after 1866. During the intervening years, the Yorkshire producers were busily supplying uniform cloths and Army blankets, on large contracts, to American merchants acting for the belligerents. At the end of 1861, Cook was writing to Russell in New York:[64]

> **Regarding the U.S. Grey Blankets . . . of which so many are being made at 66 inches by 84 inches, 10 lbs. per pair . . . we should like to enter into arrangements to commence in January . . . provided other orders do not come in the meantime . . . we could deliver 20,000 pairs per month . . . our price today would be 14s.2d. per pair . . . what the price may reach it is impossible to foresee.**

When the war was over it was found that many things had gone with the wind. Not the least of these, in the opinion of many Yorkshiremen, was the commerce in blankets between the West Riding and the United States.

Epilogue

This brief examination of Thomas Cook's business activity in the Anglo-American trade may be used to draw some general conclusions on his entrepreneurial success. In 1811 he was a newcomer to an old, established industry, and his only asset was a knowledge of mercantile practices. Once established at Dewsbury Mills, he quickly extended his interests forward into the American market for his finished products and backward into the factor markets for raw materials, machinery and technical processes, and labor.[65] His

[63] Thos. Cook to Dovemus and Nixon, New York, June 7, 1861.
[64] Thos. Cook to W. H. Russell, Dec. 21, 1861.
[65] The firm's surviving records are lamentably deficient in yielding information concerning the supply of labor to the enterprise.

propensity to initiate and to accept change was strongly allied with a determination to lower costs and raise sales wherever and whenever the opportunity appeared.[66] Outside of wool buying, for which he possessed a distinct flair, he did not long rely on rule-of-thumb techniques. In manufacturing and in marketing he was quick to develop rational systems of operations which reduced waste, minimized risks, and imposed order on the functions of the enterprise.[67] His low per unit profit policy could not have registered success without stringent control over production costs and a reliable flow of intelligence respecting market conditions and the behavior of competitors. He displayed pioneering enthusiasm in establishing direct contacts with the American market, with the introduction of the cotton warp, in the employment of power looms and mechanical condensers; but he was also an imitative entrepreneur, copying the designs of his French competitors, emulating the large wool staplers in their methods of importing foreign fibers, and picking up technical hints as he traveled around the West Riding. He was powerfully motivated by the desire to make profits, but he was no speculator. He took calculated risks designed to promote the growth of the business and to build a first-class trading reputation. He derived intense satisfaction from seeing a job of work well done, and his philosophy of manufacture was expressed in the creation of products which were excellent in their class, even though the class might occupy a humble position in the scale of consumer tastes. He was a sternly disciplined entrepreneur, meticulous in his trading methods, fulfilling his commercial commitments promptly, and demanding a reciprocal treatment from his business associates.[68] The position which he established in the blanket trade enabled him to diffuse these ideas of business efficiency throughout the "heavy woolen" area of Yorkshire.

Cook also enjoyed good health. This sustained him throughout fifty years of blanket making and selling, until his death in 1861 at the age of seventy-four.[69] He left his successors a business organization that not only survived the economic strains of the loss of the American market and the rigors of the "Great Depression" of the

[66] For an interesting discussion of the vertical extension of entrepreneurship, see G. J. Stigler, "The Division of Labor is Limited by the Extent of the Market," *Journal of Political Economy*, vol. LIX (1951), p. 185 *et seq.*

[67] Cook's entrepreneurial development could certainly be fitted into Professor A. H. Cole's typing of entrepreneurship as set forth in his "An Approach to the Study of Entrepreneurship," *Journal of Economic History*, vol. VI, Suppl. (1946), pp. 1–15.

[68] Throughout the correspondence books, the letters written by Cook are always clearly expressed, dignified in tone and precise in meaning. By contrast, he was often complaining of the looseness of expression which characterized the communications of his correspondents.

[69] He was writing long letters to his customers on the day he died.

last quarter of the nineteenth century, but also proved capable of withstanding the periodic financial crises which seem inimical to the long-run fortunes of all family firms.[70] His success in the Anglo-American trade was not only an achievement for the firm and for the industry of which it formed a part, but was also beneficial to those American merchants and producers with whom he transacted business and engaged in competition. His standards of commercial integrity, coupled with the quantity, quality, and variety of products which he supplied to the American consumer, added not inconsiderably to the mainstream of economic progress in the United States.

Cook made his mistakes – wrong decisions at the right moment and right decisions at the wrong moment. His major failing was an apparent disinterestedness in the planning of a rational product-flow system as the facilities at Dewsbury Mills were expanded.[71] But he was characteristic of his times, society, and culture in displaying in vigorous fashion five strong propensities: the propensity freely to exploit competitive factors and product markets; the propensity to maximize profits over the long period; the propensity to "plow back" trading surpluses; the propensity to expand output; and the propensity to adapt the economic environment to the firm by means of innovations in production and in marketing.[72]

[70] See A. H. Cole, *Business Enterprise in its Social Setting* (Cambridge, Mass., 1959), especially pp. 56–59 for a general discussion of entrepreneurship and the family firm.
[71] The legal and business aspects of partnership also contributed to this failure.
[72] The influence of W. W. Rostow is acknowledged in this final paragraph.

The Business Community and the Origins of the 1875 Resumption Act*

Far from being a manifestation of the rising tide of business influence in society, the 1875 Resumption Act really demonstrated that to legislators of the day the wishes of important segments of the business community were less important than considerations of party politics.

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Few measures in American financial history have been so generally misunderstood as the Resumption Act of 1875. Serving as the vehicle for the nation's return to specie payments in 1879, the law apparently represented a decisive victory of "sound finance" over inflation, of gold coin over the fiat greenback dollar.

* I wish to thank Professor David Donald of Princeton University for aid in preparing an early draft of this essay.

But beyond this, the measure has come to symbolize a revolutionary shift in the nation's political center of gravity. Since it has long been the practice to identify hard money with the "investing section" and soft money with the "agrarian section," the Republican sponsored measure seemed to establish the subordination of the party of Lincoln to the aggressive post-Civil War business and property interests of the East. In effect, the 1875 Act testified to the newly won ascendancy of the businessman in the political and economic life of post-bellum America.[1]

A close look at the genesis of the resumption measure, however, reveals the inadequacy of this view. Businessmen did little to influence the legislative course of the Resumption Act and, after its passage, were openly contemptuous of the new legislation. Engineered by Republican Congressional leaders intent on averting a threatened party schism, the law was the product of distinctly political forces. The bill which emerged from the Republican Senatorial caucus in December, 1874, was, in reality, a deliberately equivocal measure which seemed to contemporaries as likely to inflate the currency as to bring the nation back to specie.

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The origins of the Resumption Act are to be found in the political events that followed the Panic of 1873. The immediate effect of the business collapse in September of that year was an acute money and credit stringency which sent merchants and manufacturers crying to the government for relief. The Grant Administration attempted to meet these demands by reissuing $26 million of the "reserve" greenbacks held by the Treasury.[2] The reissue failed to relieve business distress, however, and in his Annual Message the President urged Congress to make the nation's money system "flexible," that is, responsive to expanded business needs in such periods of stringency. But at the same time Grant called for caution in tampering with the circulation, warning against "undue" inflation in times of

[1] For several examples of this thesis see Matthew Josephson, *The Politicos, 1865–1896* (New York, 1938), pp. 194–195; Louis M. Hacker, *The Triumph of American Capitalism* (New York, 1947), pp. 385–387; and Paul Studenski and Herman E. Krooss, *Financial History of the United States* (New York, 1952), pp. 161–162. For instances in two influential American history textbooks see Charles A. and Mary R. Beard, *The Rise of American Civilization* (Revised Edition; New York, 1944), vol. II, pp. 105–106; and Samuel Eliot Morison and Henry Steele Commager, *The Growth of the American Republic* (Fourth Edition; New York, 1950), vol. II, pp. 6–7. The quoted phrases are from Beard and Beard, *American Civilization*, vol. II, p. 331.

[2] This "reserve" represented $44 million of legal tenders "retired" by Treasury Secretary Hugh McCulloch in 1866–1868 under the terms of the Loan Act or Contraction Act of 1866. For details see Studenski and Krooss, *Financial History of the U.S.*, pp. 171–172. A description of business pressures and the Administration's response following the Panic may be found in the New York daily press and the *Commercial and Financial Chronicle* for the period September 21 through October 10, 1873.

emergency for the sake of "temporary relief."[3] In the end the President only succeeded in confusing the public and the press which could not be certain whether he favored expansion or contraction.[4]

When Congress convened in December it was thus without a clear executive mandate on financial matters and, faced with a continuing demand for monetary relief,[5] it moved quickly to inflate the currency. In the Senate a group of westerners – Administration Republicans, close to the President – assumed control of currency legislation. These men, led by Thomas Ferry of Michigan, John Logan of Illinois, and Oliver P. Morton of Indiana, were not greenback idealogues but men who accepted moderate expansion as meeting the needs of the moment. The corresponding group of leaders in the House – Horace Maynard of Tennessee, Benjamin F. Butler of Massachusetts, and William D. ("Pig Iron") Kelley of Pennsylvania – while equally high in party and Presidential counsels – were men of a different breed. Kelley and Butler, in particular, were greenback war horses, for many years leaders in the battle for the cheap dollar.

Out of the currency melee of the session emerged the so-called "Inflation Bill" of 1874. Considering the prevailing business anxiety, this measure, providing for additional national bank note circulation and a return to the $400 million of greenbacks which circulated before the contraction of the 1860's, was really a moderate piece of legislation.[6] But it was a retreat from resumption and produced an enormous furor among the hard money men. Unable to check the measure in Congress, the conservatives appealed to Grant for a veto,[7] and on April 22, after a period of indecision, the President returned the bill with one of his rare negatives.[8]

Grant's veto delighted the influential political independents and

[3] James D. Richardson, ed., *A Compilation of the Messages and Papers of the Presidents* (New York, 1897), vol. IX, p. 4198.

[4] See the *New York Daily Tribune*, the *New York World* and the *New York Evening Post* for December 3 and 4, 1873.

[5] Business groups continued to demand inflation legislation through the long Congressional session. For several examples of inflationist petitions from businessmen see the *Congressional Record*, 43d Cong., 1st Sess., pp. 2182, 2348–2349, 2539.

[6] The total inflation possible under the measure was about $64 million, but many observers were convinced that even this amount was an overestimate. This view was held by Secretary Richardson, for example. For Richardson's opinion see the manuscript diary of Hamilton Fish, entry for April 15, 1874, Hamilton Fish MSS., Library of Congress.

[7] The most complete published account of the pressures placed on the President during this period can be found in Allan Nevins, *Hamilton Fish: The Inner History of the Grant Administration* (Revised Edition; New York, 1957), vol. II, pp. 712–713. A fuller account will be found in my typescript doctoral dissertation, "Men, Money and Politics: The Specie Resumption Issue, 1865–1879" (Columbia University, 1958), pp. 168–174.

[8] Nevins, *Hamilton Fish*, pp. 712–713; and William B. Hesseltine, *Ulysses S. Grant, Politician* (New York, 1957), p. 335.

the New York and New England hard money Republicans,[9] but it dismayed the western stalwarts. In the Senate the Inflation Bill managers were "struck dumb with surprise" when the veto message was read. The paralytic Morton, it was reported, looked as if he had suffered a second stroke. In the House the message produced intense excitement. All business stopped while agitated members gathered in knots to discuss the significance of the veto and its probable consequences.[10] The Republican inflationists were angry and defiant and for a while a serious party breach appeared likely. Morton, Butler, and Logan, who had long been the President's closest advisers, were furious at Grant for permitting his friends in Congress to make such fools of themselves. But aside from the embarrassment it caused, the episode foreshadowed, they feared, the "restoration of [Roscoe] Conkling and Company to a warm corner near the Presidential hearth," leaving them "out in the cold." [11] The westerners also knew that it would be difficult to explain Grant's action to their constituents in the fall Congressional contest, and they talked seriously of a manifesto repudiating the veto, hoping thereby to insulate themselves from its effects.[12]

The violent reaction of the inflationists disturbed the moderate party leaders. Many saw political trouble ahead that could only give solace to the Democrats, and they sought to head off any ill-considered move by the inflationist wing. Speaker James G. Blaine, fearing that a party split might jeopardize his Presidential prospects for 1876, was particularly anxious to patch things up.[13] The immediate problem was to avoid further exacerbating tempers, and Blaine and the other peacemakers who soon volunteered their services promised the soft money faction another try at financial legislation later in the session in return for temporary acquiescence in the veto. But they also referred ominously to the fate of Charles Sumner three years before when the late Massachusetts Senator had crossed Grant over the *Alabama* Claims and the acquisition of Santo Domingo.[14]

This combination of cajolery and intimidation succeeded in stopping the would-be insurgents. The soft money men were given a chance to vote on repassage, but only after agreeing to dispense

[9] See Estes Howe to David A. Wells, Cambridge, Mass., April 29, 1874, David A. Wells MSS., Library of Congress; *Nation*, April 30, 1874, p. 278; and the *New York Times*, April 23, 1874.

[10] *New York World*, April 23, 1874.

[11] *Ibid.*, April 27, 1874.

[12] *Ibid.*, April 25, 1874.

[13] *Ibid.*, April 27, 1874.

[14] *Ibid.*; and April 24, 1874. Sumner, it will be recalled, had been deprived of the Chairmanship of the Senate Foreign Relations Committee for defying Grant and thereby reduced to virtual political impotence.

with further debate. While the Democrats made sarcastic remarks about the autonomy of Republican legislators and the "great unshaken and intrepid" Republican party, the grim-faced Republicans silently voted on the motion to override.[15] The roll call was almost identical with that of the original vote – far short of the necessary two thirds.[16]

As Blaine had promised, Congress was to have another try at currency legislation before adjournment, but once again the Administration clumsily antagonized the powerful Republican soft money wing. While the Inflation Bill was evolving in the Senate, the House had been composing its own currency measure, and this bill was now resurrected. But before it had progressed very far, Grant addressed to Senator John P. Jones of Nevada a public memorandum which laid down rigorous hard money specifications for Presidential approval of any new currency legislation.[17] The Jones letter raised another political storm. The Republican expansionists were outraged at Grant's intervention which they charged was both unwarranted and unprecedented. The President, they were certain, would ruin the party if he persisted in his course.[18] Even Blaine, a confirmed hard money advocate, talked privately of repudiating the President if he continued to antagonize the westerners.[19] And indeed, coming so late in the session, the pronouncement appeared likely to widen the party division beyond repair. As one observer noted, "a glycerine explosion could hardly have shattered the Republican party . . . more than the failure of the currency bill [i.e. the Inflation Bill], the veto, and the [Jones] memorandum." [20]

Although, at the last minute, Congress did succeed in passing another financial bill – one that substantially loosened money controls [21] – it was generally believed that the measure did little beyond

[15] *Ibid.*, April 29, 1874.

[16] The defeat of the attempt to override in the Senate was final; no effort was made to repass the bill in the House. See the *Congressional Record*, 43d Cong., 1st Sess., p. 3436; and the *New York World*, April 29, 1874.

[17] Grant recommended repeal of the Legal Tender Act, refunding of the outstanding greenbacks into a 4½% bond, the immediate withdrawal of all small denomination legal tenders and payment of all contracts entered into after July 1, 1875, in coin only. See *New York World*, June 3, 1874; and *Banker's Magazine*, vol. XXIX (July, 1874), pp. 65–66. The circumstances surrounding the issuance of the Jones memorandum are described in the diary of Hamilton Fish, entries for June 1 and 3, 1874, Fish MSS.

[18] *New York World*, June 6, 1874.

[19] Fish diary, entry for June 7, 1874.

[20] *New York World*, June 15, 1874.

[21] In addition to legalizing Secretary Richardson's "reserve" reissue, the bill relieved the banks of the necessity of retaining reserves against the issue, thereby releasing $44 million of reserve greenbacks for circulation. For the full text of the Act see Charles F. Dunbar, *Laws of the United States Relating to Currency, Finance, and Banking from 1789 to 1896* (Boston, 1897), pp. 210–214. A discussion of the inflationary effects of the bill will be found in Robert T. Patterson, *Federal Debt Management Policies, 1865–1879* (Durham, N.C., 1954), pp. 156–157.

confirming the existing currency situation,[22] and it was with serious misgivings that Republican members returned home in June to face the fall election campaign.

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Under the best of circumstances 1874, following as it did two years of political scandal and the most severe economic recession in a generation, promised to be a bad year for the party in power. But, as many Republicans had feared, disunity over the financial question threatened to administer the finishing stroke to the party's chances in the Congressional and state contests. In the inflationist West, Grant's conservative financial stand caused serious problems for the Republicans, who found themselves obliged to choose between defending an unpopular position and repudiating their own party chief. In Indiana Morton struggled manfully to excuse Grant, arguing the proposition that the vetoed bill would have actually produced less expansion and consequently less real relief than the measure that the President ultimately signed.[23] In Ohio as well as Indiana the Republicans, with moderate expansionist platforms, confronted militant Democratic greenbackers,[24] and were forced to bear the onus of the Grant veto – ordered, the Democrats were to charge, by the bondholders, the railroads, and the bankers.[25]

In a number of western states the money issue produced serious strains within the local party organizations. Michigan hard money men, led by Senator Zachariah Chandler, clashed with Ferry's followers at the August state convention and a dangerous party split was barely averted.[26] In Illinois, where the Republicans expected a hard fight, the conflict between the conservatives and the Logan men became a matter of serious concern to the party leaders.[27] Party unity in Ohio deteriorated to the point where dissatisfied "hards" openly called for the defeat of fellow Republicans guilty of supporting inflation in the last Congressional session.[28]

Early victories in the October elections foreshadowed Democratic success, but the extent of the Republican debacle exceeded all expectations. For the first time since 1861 the House of Representatives passed into Democratic control, an overwhelming Republican

[22] For example, see *Commercial and Financial Chronicle*, vol. XVIII (June 27, 1874), p. 70.
[23] William Dudley Foulke, *The Life of Oliver P. Morton* (Indianapolis, 1899), vol. II, pp. 345–347.
[24] For the Democratic state platforms see the *American Annual Cyclopedia and Register of Important Events of the Year 1874*, pp. 414–415, 667–668.
[25] *Chicago Daily Tribune*, Aug. 8, 1874.
[26] *Ibid.*, Aug. 27, 1874.
[27] *Nation*, June 25, 1874, p. 404.
[28] *Cleveland Leader*, June 27, 1874.

majority converted into a Democratic majority of about seventy. In Illinois and Missouri local Democratic victories ensured the defeat of Senators Logan and Schurz, while Democratic governors were elected in Missouri, Massachusetts, New Jersey, and New York.[29]

With this plain demonstration of the price of disunity, Republicans returned for the lame duck session in December determined to avoid another legislative fiasco. At all costs the party must not become involved in another disruptive currency wrangle. The Republicans could not afford to approach the 1876 Presidential campaign weakened by dissensions over the money question.[30] But hopes of peace quickly collapsed. The Administration's financial recommendations, embodied in the President's Message and Treasury Secretary Benjamin Bristow's Annual Report, seemed a deliberate provocation to the soft money wing. The President and the Secretary demanded repeal of the Legal Tender Act and a deflationary funding of greenbacks into a long-term bond,[31] suggestions that infuriated the Republican inflationists. The day following the Message, Kelley rose in the House and delivered an impassioned defense of the soft money position.[32] He was followed by Butler who also "exhibited the inflation doctrine full blast." [33] Conservatives James A. Garfield and Henry Dawes were stung into replying, and a full-scale currency debate with all its attendant political dangers seemed imminent.[34]

The threat of another intraparty currency feud badly shook the moderate Republican leaders who, Garfield wrote the following day, were plunged into a state of "depression . . . in consequence of the hopeless division on the question of the currency." [35] But at this point the instinct for self-preservation prevailed. The debate which threatened to resume on December 10 was suspended by mutual consent, and it was agreed to postpone further discussion until a general party measure could be prepared. The militant House inflationists, who at first refused to cooperate, were brought

[29] Ellis Paxson Oberholtzer, *A History of the United States Since the Civil War* (New York, 1922), vol. III, pp. 138–141; and James Ford Rhodes, *History of the United States from the Compromise of 1850 to the Final Restoration of Home Rule at the South in 1877* (New York, 1906), vol. VII, pp. 68–69.

[30] *Chicago Daily Tribune*, Dec. 14, 1874; *New York World*, Dec. 7, 1874.

[31] Richardson, *Compilation of the Presidents*, vol. X, pp. 4239–4241; and United States Treasury, *Annual Report of the Secretary . . . on the State of the Finances for the Year 1874*, pp. xiv–xvi. These recommendations, it should be noted, closely resembled those of the Jones memorandum. See note 17.

[32] *Congressional Record*, 43d Cong., 2d Sess., pp. 20–22. Hereafter all references to the *Record* will be to this Congress and session unless otherwise indicated.

[33] Manuscript diary of James A. Garfield, entry for Dec. 8, 1874, Garfield MSS., Library of Congress. For details of the Butler speech see the *Congressional Record*, pp. 22–24.

[34] *Ibid.*, pp. 24–26; *New York World*, Dec. 9, 1874.

[35] Garfield diary, entry for Dec. 9, 1874.

around when it was pointed out that a veto was certain even if they could carry a greenback bill through Congress.[36]

In the next few days the Republican leaders labored mightily to put their house in order. The Morton-Logan-Ferry group held a series of meetings to discuss the currency problem and its political ramifications.[37] Blaine and Dawes sought to achieve an advance understanding with the President in hopes of averting another demoralizing veto,[38] while Dawes, joined by John Sherman of Ohio, Chairman of the Senate Finance Committee, was reported working on a general compromise measure.[39] Sometime before December 19 the Republican Senatorial caucus assumed command of these peace-making efforts and appointed a subcommittee with authority to draw up a comprehensive financial bill. Headed by Sherman, this group was composed of 11 Senators, representing almost all shades of Republican opinion from the western soft money triumvirate to ultra conservatives like Roscoe Conkling of New York and George F. Edmunds of Vermont.[40] Whatever the political merits of such an arrangement it was not calculated to produce harmony, and almost immediately the committee ran into difficulties. Asked to outline their general views of resumption, the Senators advanced a set of seemingly irreconcilable proposals, and it began to appear that the group would disband without accomplishing anything. But at this point Sherman came forward with a plan which succeeded in uniting the committee's disparate elements.[41]

The first part of this scheme provided for replacing the worn fractional paper currency with a new silver coinage, while a second section – a sop to the western mining interests – repealed the seignorage charge for converting gold bullion into coin. But the two final propositions were the heart of the Sherman plan. The first of these enacted "free banking"; that is, removed the statute ceiling on the national bank note issue, a restriction which had effectively impeded the spread of the national banking system. Free banking, which promised controlled inflation, had long been

[36] *New York World*, Dec. 10, 1874.
[37] *Chicago Daily Tribune*, Dec. 13, 1874.
[38] *New York World*, Dec. 11, 1874.
[39] *Ibid.*, Dec. 15, 1874.
[40] The other members were: William Allison of Iowa, George S. Boutwell of Massachusetts, Frederick T. Frelinghuysen of New Jersey, Timothy O. Howe of Wisconsin and Aaron Sargent of California. See John Sherman, *Recollections of Forty Years in the House, Senate and Cabinet* (Chicago, 1895), vol. I, p. 509.
[41] Sherman's responsibility for these proposals, generally accepted by historians, has been disputed by Professor Don Carlos Barrett, who suggests George F. Edmunds as their author. See Barrett, *The Greenbacks and Resumption of Specie Payments, 1862–1879* (Cambridge, Mass., 1931), pp. 182–184. The opinion of the day, however, generally ascribed the scheme to the Ohio Senator, a claim Sherman never denied although at times it was in his interest to do so, and I am inclined to accept the views of contemporaries.

demanded by western bankers and many manufacturers, and was a major concession to the soft money faction.[42] For each $100 of new bank notes, however, $80 of greenbacks were to be "redeemed," until only $300 million remained. Thereafter, presumably, the bank note issue could expand indefinitely without affecting the volume of legal tenders. A final section, composed jointly by Sherman and Edmunds, balanced the free banking clause with specie payments. This clause authorized the Treasury to accumulate a gold reserve by selling several varieties of bonds,[43] and by direct purchase from Treasury surpluses, this reserve to be used to redeem the greenback issue on January 1, 1879.[44]

There was little in these proposals that was new. The most important features – free banking with a prorated reduction of greenbacks and resumption by a gold reserve – had been thoroughly discussed in the daily press, the financial journals and, most recently, by Congress during the previous session. The scheme actually resembled a Finance Committee measure which had been the early focus of debate in the first session. But the new proposals, it is worth noting, were more generous to the soft money interest.[45] The caucus plan did, it is true, fix a date for resumption, and this of course was an important concession to sound money opinion,[46] but this was not the first time Congress had piously announced its intention to resume. The last occasion, the Public Credit Act of March, 1869, had not advanced the nation one step closer to specie, and there was no reason to expect more of the new measure. Most expert opinion, moreover, held that successful resumption must be preceded by a drastic contraction of the outstanding greenbacks,[47] and the vague borrowing powers given the Treasury as its sole resumption machinery only confirmed conservative opinion that the

[42] For the most complete description of the difficulties produced by the bank note limitation see George L. Anderson, "The National Banking System: A Sectional Institution" (Unpublished doctoral dissertation; University of Illinois, 1933), *passim*, but especially pp. 131 *et seq*. It is important to distinguish between "free banking" as the term was used in the post-Civil War era and the free banking of the 1830's and 1840's. The term properly belongs to the Jacksonian period, when, for the first time, in such states as New York and Michigan, general incorporation laws for state banks were adopted. In reality the National Banking Act of 1863 established virtual free banking for the nation, although, as a result of its note issue limitation, it effectively restricted the development of the national banking system in the West and South once the note issue allotment had been taken up.

[43] These bonds, originally authorized by the Refunding Act of 1870, paid 5%, 4½%, and 4% interest, and had been intended for the purpose of retiring the wartime "5–20's" which paid 6%.

[44] For details see Sherman, *Recollections*, vol. I, pp. 510–511.

[45] The measure of the first session proposed resumption for January 1, 1876, and authorized a redistribution of national bank note issue from the East to the South and West rather than the inflationist free banking.

[46] See the *Chicago Daily Tribune*, Dec. 23, 1874.

[47] This point of view may be found in David A. Wells, *The Cremation Theory of Specie Resumption* (New York, 1875); and William Graham Sumner, *American Finance* (Cambridge, Mass., 1874). The view that contraction must precede resumption had also been held by Treasury Secretary Hugh McCulloch in the period 1865–1868.

specie payments clause was an artful evasion.[48] At all events the soft money Republicans received immediate free banking for which they had long agitated[49] in exchange for a problematical resumption in 1879, four years away.

The caucus committee plan was not, then, a conspicuous triumph for sound money. Rather, it was a compromise measure containing what appeared at the time to be important expansionist features to set against a weak resumption clause. The scheme lacked consistency and, it soon became obvious, clarity as well. But it more than compensated for these defects by its broad political appeal. No one could really be certain of its consequences. Indeed, it seems clear that to most moderate Republicans its consequences were irrelevant: it was sufficient that it promised momentary party peace.

Once the subcommittee had reached agreement Sherman pressed for rapid Congressional action. On December 19 the committee report was submitted to the full Senate caucus and after careful scrutiny was adopted without change.[50] In the Senate itself, however, where the measure appeared on December 21, Sherman encountered strong resistance. It is noteworthy that much of the opposition when the bill was briefly debated on December 22 came from the root-and-branch resumptionists who would have been overjoyed with an honest specie payments measure. Carl Schurz, a financial conservative who as a Liberal-Republican was not politically committed to the caucus scheme, immediately labeled the bill a fraud. It paraded as a resumption measure, he declared, but the resumption clause was clearly unworkable since it would be impossible to raise a gold fund sufficient to redeem $300 million in greenbacks. Unless supplemented by a drastic contraction of the legal tender circulation the bill would be worthless.[51] Schurz shrewdly raised the question of the greenbacks to be "redeemed" as an offset to the new bank note issues. Could these be kept as a "reserve," to be thrown into circulation again at the Treasury's discretion as the Administration had recently done with the reserve accumulated in the 1860's.[52] Hard money Democrats Allen Thurman of Ohio, Thomas Bayard of Delaware, and William Hamilton of Maryland quickly joined Schurz in demanding to know what was to be done with the retired greenbacks.[53]

[48] It was pointed out, for example, that the bonds available for resumption purposes under the 1870 measure were too unattractive for ready sale to investors. See the *New York World*, Dec. 24, 1874.

[49] See again the author's "Men, Money and Politics," pp. 60 *et seq.*

[50] Sherman, *Recollections*, vol. I, p. 511; *Chicago Daily Tribune*, Dec. 20, 1874.

[51] *Congressional Record*, pp. 205–206.

[52] *Ibid.*, pp. 196, 205–206.

[53] *Ibid.*, pp. 198, 202–203.

This very problem had caused difficulties in the caucus committee when the measure was being prepared, and for the sake of harmony it was agreed that when reporting the bill Sherman would sidestep the embarrassing reissue question.[54] But when called to account by Schurz, the Ohio Senator was forced to confess the political considerations underlying the caucus scheme. The question of the redeemed notes had been deliberately left open to avoid controversy, he admitted. But having conceded this, Sherman, confident of a disciplined Republican majority, peremptorily refused to discuss the question further. He would not, he told the Senate, permit so necessary a measure to bog down over a minor issue of this sort.[55]

Opposition Senators protested Sherman's steamroller tactics. The bill was being pushed through with indecent haste, complained Thurman, who demanded at least two weeks for thorough debate.[56] Bayard protested that he had not even had time to read the bill in the short interval since its introduction.[57] Sherman's reply to these complaints was that the issues raised in the measure had already been fully discussed, and that delay would only prolong public uncertainty.[58] In the end the Democratic outcry failed to move the Republicans. After a few frustrating hours the opposition gave way and the measure was passed by the strict party vote of 32 to 14 with 27 Senators abstaining.[59] Bayard, for one, was so disgusted with the high-handed Republican tactics that he had not bothered to stay for the roll call.[60]

Efforts were made to get the lower chamber to take immediate action on the bill. Sherman and other Senate leaders were on the House floor on December 23 holding earnest consultations with House committee chiefs. But the pending civil rights legislation had priority and consideration of the measure was postponed until after the Christmas recess.[61]

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The new financial legislation was never far from the politicians' minds in the next few days. In general the more intransigent sound money Republicans found it difficult to swallow the caucus scheme. Eastern Republicans representing the money centers of Boston and New York objected to the free banking clause fearing it would dilute

[54] Sherman, *Recollections*, vol. I, p. 510.
[55] *Congressional Record*, p. 196.
[56] *Ibid.*, pp. 186, 198.
[57] *Ibid.*, p. 186.
[58] *Ibid.*
[59] *Ibid.*, p. 208.
[60] Bayard to Manton Marble, Washington, December [?], 1874, Marble MSS., Library of Congress.
[61] *Chicago Daily Tribune*, Dec. 24, 1874.

the value of existing national bank stock.[62] The New England "honest money" element, certain that contraction must precede specie payments, agreed with Schurz that the resumption clause was fraudulent. Representative Ebenezer R. Hoar, for one, rejected the proposed bill despite assurances from his less fastidious fellow Republicans that the resumption clause would be reinforced with more adequate legislation.[63] Dawes was warned that he would hurt his chances for the vacant Massachusetts Senate seat if he voted for so dishonest a measure.[64] Eastern sound money Democrats were also skeptical of the bill. One Pennsylvanian likened it to the Papal bull against the comet. It was a futile gesture, he wrote, and would only give the nation four more years of uncertainty.[65]

Significantly, western Republicans, who had long been on the defensive at home over the money issue,[66] were far more friendly to the pending bill. Garfield wrote hopefully that the measure took "steps in the direction of specie payments." Although admittedly it was "not very decisive . . . it does do something," and, more important, it promised "something that approaches a union in the party." [67] And views like Garfield's, reported the influential religious weekly, the *Independent*, were shared by many other Republicans in the West.[68] Western inflationist Democrats, however, like their conservative eastern brethren, attacked the new bill, although for very different reasons. The *Cincinnati Enquirer*, voice of the extreme greenback Democracy, warned that it conferred immense powers on the Treasury and reinforced the monopolistic national banking system. Western Democrats, the paper predicted, would oppose it "as a cheat, a false promise," which would "perpetuate and enlarge" the powers of the detested national bankers.[69]

Extremists at either end of the money spectrum, then, disliked the measure, but it was clear that it would have the support of the large moderate Republican element. Both "softs" and "hards" were to be found in this group, but these men were not fanatics and were unwilling to endanger the party for the sake of a financial abstraction. The resumption bill would pass the House handily, the

[62] *Ibid.*, Jan. 4, 1875.
[63] Hoar to John Murray Forbes, Washington, D.C., Jan. 8, 1875, quoted in Moorfield Storey and Edward D. Emerson, *Ebenezer Rockhood Hoar, A Memoir* (Boston, 1911), p. 237.
[64] Samuel Bowles to Henry L. Dawes, Jan. 6, 1875, quoted in George S. Merriam, *The Life and Times of Samuel Bowles* (New York, 1885), vol. II, p. 344.
[65] Jonathan M. Hildeburn to Samuel J. Randall, West Chester, Pennsylvania, Dec. 29, 1874, Randall MSS., University of Pennsylvania Library.
[66] For the key role of western Republicans in the Reconstruction currency controversy see "Men, Money and Politics," *passim*.
[67] Garfield diary, entry for Dec. 23, 1874.
[68] *Independent*, Dec. 13, 1874, p. 13.
[69] *Cincinnati Enquirer*, Dec. 24, 1874.

Chicago Tribune predicted on January 4, for Republicans who would not vote for it on its financial merits would support it for reasons of party strategy. Western Republicans, confronting militant Democratic greenbackers in their home districts, believed it would help defer a showdown on the money issue. Moderate Republicans of both East and West hoped the bill would remove the disturbing money question from politics at least until after the Presidential contest.[70]

When Congress reconvened, the Republican chiefs, anxious for quick passage, resorted to sharp parliamentary maneuvering. After encountering resistance on his Banking and Currency Committee, Chairman Horace Maynard agreed to permit amendment and debate in return for an agreement making the resumption measure the special order of business for January 7. But once the bill had been brought up he demanded an immediate vote. Dawes and Democrat Samuel J. Randall were bitingly sarcastic when Maynard agreed to permit the dissenters to record their protests in the *Congressional Record*, but party machinery functioned smoothly and the bill passed 136 to 98.[71]

The House vote, like that of the Senate, was strongly partisan with only two Democrats supporting the measure. But sectional differences in the lower chamber broke through party discipline, and twenty-two Republican representatives, half of them easterners, voted against the bill. Nine of the twenty-two voting New England Republicans, moreover, including Dawes and the Hoar brothers, opposed passage. Butler, the only New England soft money man, abstained, while Kelley was one of the five middle state Republicans who voted no. As predicted the bill had been passed by the moderate Republicans with Democrats and the few Republican extremists opposed.

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The political origins of the 1875 Resumption Act were readily apparent to contemporaries. There had been little demand for new financial legislation prior to the opening of the short Congressional session in December. This contrasted sharply with the previous session when businessmen and trade associations had bombarded Congress with petitions and letters and the trade press had carried impassioned editorials favoring one currency position or another.[72] After the uncertainty of the past year, b inessmen wanted financial

[70] *Chicago Daily Tribune*, Jan. 4, 1875.
[71] *Ibid.*, Jan. 8, 1875; *Congressional Record*, p. 319.
[72] "Men, Money and Politics," chap. V.

peace above all. Merchants, bankers, and manufacturers alike were agreed, *Banker's Magazine* reported in January, 1875, that the "country needs rest; that the turmoil of congressional meddling with the currency should cease." [73]

Having taken no part in its passage, businessmen could be objective about the new measure and generally recognized its political function. The organs of the respectable financial community — *Banker's Magazine*, the *Financier* and the *Commercial and Financial Chronicle* — found little to say in its favor. Central monetary management was still suspect in the United States, and the conservative financial writers feared that the Resumption Act gave the Treasury a dangerous unsupervised control of the nation's currency system.[74] But at the same time, they held, no adequate machinery for resuming had been established, and despite its grant of broad discretionary powers, the law could not be used effectively to resume. As for its immediate results, it was not at all clear whether it would expand or contract. All in all the measure seemed to be really a political trick, not to be taken at face value.[75]

Nor were these views unique to the financial editors. John E. Williams, president of the Metropolitan National Bank of New York, considered the resumption measure a "game of bluff" designed primarily "to make a show of cohesion in the republican party which the other side asserted did not exist," and secondarily "to force the democrats to vote against it that the oligarchic [i.e., Administration] organs might proclaim to the world that democrats opposed specie payments." [76] The journal of the soft money Industrial League, an association of Pennsylvania ironmasters, observed that the Republicans had proved "that they could come to agreement upon the finances by adopting a measure to which nobody is really agreed." Everyone "finds something in it which he don't like, but it pleases him to think that it must be disgusting to someone else; and there is a desire at all events to get the whole subject out of the way which is temporarily gratified." [77] The measure, the *Financier* concluded, "gives no assurance whatever that resumption

[73] *Banker's Magazine*, vol. XXIX (Jan., 1875), pp. 492–493.

[74] *Financier*, vol. VII (Jan. 16, 1875), pp. 36–37; *Banker's Magazine*, vol. XXIX (Feb., 1875), pp. 65–70; *Commercial and Financial Chronicle*, vol. XX (Jan. 16, 1875), pp. 49–50.

[75] *Banker's Magazine*, vol. XXIX (March, 1875), pp. 710–711; Sherman, *Recollections*, vol. I, pp. 519–520; *Commercial and Financial Chronicle*, vol. XX (Feb. 20, 1875), pp. 172–173.

[76] Williams was quoted by John G. Drew in a letter to Samuel J. Randall. See Drew to Randall, Elizabeth, New Jersey, Dec. 31, 1874, Randall MSS.

[77] *Industrial Bulletin*, vol. V (Jan., 1875), p. 1.

will be reached at the date named and . . . it is entirely disregarded by the business community in its calculations." [78]

Democrats and Liberals were, of course, quick to point out the political purposes of the new legislation. Manton Marble, editor of the Democratic *New York World*, ridiculed it as a purely partisan declaration of "not much more value . . . than to say Christmas shall fall on the 4th of July," [79] and the *World* derisively labeled it "Sherman's Sham," [80] an epithet that was soon being used by Democrats throughout the country. More revealing was the attitude of the sound money Liberals who, for all their disdain for Grantism, would have been pleased with even a Republican sponsored resumption law had they believed it adequate. The new measure was "got up," observed the *Nation*, to "produce both an appearance of union where no real union exists and an appearance of doing something where nothing is done." [81] Edward Atkinson, who spoke for both the Liberals and an important sector of the New England textile interest, wrote Speaker Blaine that the bill that had then just passed the Senate was "a dead letter already in the public estimation." "It declares for specie payment at a fixed date but makes no *operative* provision to bring it about." It would "do harm rather than good because it . . . [would] not restore confidence and confidence is the one thing now needed. . . . That the bill is rubbish and a sham is the inside verdict of everyone that pretends to know anything." [82]

Such examples of ridicule and contempt could easily be multiplied.[83] Republican motives were too transparent for either businessmen or the general public to take the measure seriously as a solution of the nation's financial problems. Designed by the Republican Congressional leadership "as a party necessity under the whip and spur of the previous question," [84] it contained little to attract

[78] *Financier*, vol. VIII (Nov. 27, 1875), pp. 358–359.

[79] Marble to Thomas Bayard, Dec. 27, 1874, quoted in Charles C. Tansill, *The Congressional Career of Thomas Francis Bayard, 1869–1885* (Washington, 1946), p. 96, n. 118.

[80] *New York World*, Dec. 23, 1874.

[81] *Nation*, Dec. 31, 1874, p. 427.

[82] Atkinson to James G. Blaine, Boston, Dec. 29, 1874, Atkinson Letter Books, Atkinson MSS., Massachusetts Historical Society.

[83] For example, see the following: *Iron Age*, vol. XV (Jan. 21, 1875), p. 14; *New York Herald*, Dec. 24, 1874; Amasa Walker to Manton Marble, North Brookfield, Mass., Dec. 25, 1874, Marble MSS. The *London Times* of Dec. 26, 1874, called the bill, which had just passed the Senate, a measure "to provoke the laughter of all mockers," while the Washington reporter of the *Independent* bluntly referred to it as a partisan political measure condemned by "every bank president and practical financier." See the *Times* clipping in the letter of J. H. Wilson to Benjamin Bristow, London, Dec. 24, 1874, Bristow MSS., Library of Congress; and *Independent*, Dec. 31, 1874, p. 3.

[84] This description of the Republican measure was voiced by Democratic Congressman Samuel S. Cox of New York during a financial debate in the following Congress. *Congressional Record*, 44th Cong., 1st Sess. (Aug. 5, 1876), p. 5219.

men outside the narrow circle of Republican orthodoxy. Western Democrats, eastern Democrats and independents alike held it in contempt: its only substantial support came from the moderate Republican stalwarts. In New York the Administration organ, the *Times*, welcomed it as a step in the right direction.[85] Logan's paper, the *Chicago Inter-Ocean*, was even mildly enthusiastic, though for reasons the hard money *Times* would have deplored. "The bill gives the country free banking," an *Inter-Ocean* editorial noted. "Naming a day four years hence on which to resume is really an expression of opinion by the gentlemen comprising the Senate."[86]

The conflicting interpretations of the *Times* and *Inter-Ocean* confirm the political success of the new law. Reformers and businessmen might cavil but Republicans could congratulate themselves on having constructed a currency platform broad enough for all but the most intransigent party elements. Eventually, following a chance shift in the nation's balance of trade, the 1875 legislation did bring the country back to the gold standard. And it is this result that gives to the passage of the bill the appearance of a great sound money victory. But this was neither foreseen nor intended by the sponsoring Republican leaders. Acting with purely political ends in view the Republican moderates foisted on the nation an unwanted measure. Far from submitting meekly to the postwar business interests the politicians acted despite the general business desire for financial peace. It is difficult not to conclude that there were forces other than the wishes of the business community at work in post-bellum America.

[85] *New York Times*, Dec. 21, 1874.

[86] *Chicago Inter-Ocean*, Dec. 24, 1874. At the time this editorial was written the bill had as yet passed only the upper house, hence the reference to "the gentlemen comprising the Senate."

Studies in Enterprise, 1960

A Selected Bibliography

by Lorna M. Daniells

REFERENCE LIBRARIAN
AT HARVARD GRADUATE SCHOOL OF
BUSINESS ADMINISTRATION

This third annual bibliography has essentially the same coverage as that of last year. It includes selected histories of industries, histories of specific corporate functions, episodes in the history of companies, and histories of trade associations, as well as over-all histories of companies and biographies of businessmen. Although still limited geographically to the United States and Canada, several bibliographies of British, German, and Japanese company histories are included under the heading "Business History, Foreign — Bibliography."

This list attempts to include the most significant books, pamphlets, and articles published in 1960 and also a few earlier books that had previously escaped the compiler's attention. The arrangement is alphabetical by the subject of each study. Cross references have been used freely so that the bibliography can be approached from an industry and functional as well as from a company point of view. A few descriptive notes have been added to give a better understanding of the coverage of a particular work, or to identify further the specific nature of a business or occupation.

Accounting

EDWARDS, JAMES D. *History of Public Accounting in the United States.* East Lansing, Michigan, 1960. 368 pp. (Michigan State University, Bureau of Business and Economic Research. MSU Business Studies).

SAMPSON, ROY J. "American Accounting Education, Textbooks and Public Practice Prior to 1900," *Business History Review,* Vol. XXXIV, No. 4 (Winter 1960) pp. 459–466.

See also entries for **Auditing; Hermon F. Bell.**

Advertising

MYERS, KENNETH H. "ABC and SRDS: The Evolution of Two Specialized Advertising Services," *Business History Review,* Vol. XXXIV, No. 3 (Autumn 1960) pp. 302–326.

See also entry for **Albert D. Lasker.**

Agricultural Machinery

DIEFFENBACH, E. M., AND R. B. GRAY. "The Development of the Tractor," *Yearbook of Agriculture, 1960: Power to Produce,* U. S. Department of Agriculture, pp. 25–45.

Agriculture. See entries for **Frank Bond; John Breckinridge; Cattle Industry; Cooperatives; Food Industries; Eugene D. Funk.**

Air Lines. See entries for **George T. Baker; Hawaiian Airlines.**

Airplane Manufacturing

SIMONSON, G. R. "The Demand for Aircraft and the Aircraft Industry, 1907–1958," *Journal of Economic History,* Vol. XX, No. 3 (September 1960) pp. 361–382.

This is a condensed version of the first chapter of the author's doctoral dissertation, "Economics of the Aircraft Industry," University of Washington, 1959.

See also entry for **Sherman M. Fairchild.**

Air Products, Inc. (industrial gases and equipment)

HAMMER, RICHARD. "Pool's Fight for Air," *Fortune,* Vol. LXI, No. 3 (March 1960) pp. 137–141+.

American Can Company (metal, fibre and paper containers)

STOLK, WILLIAM C. *American Can Company, Revolution in Containers.* N.Y., Newcomen Society in North America, 1960. 28 pp.

Anniston Manufacturing Company

BENNETT, FRANK C. "The Old Mill: The Anniston Manufacturing Company, 1880–1959," *Cotton History Review,* Vol. 1, No. 1 (January 1960) pp. 13–18.

Arkansas Power & Light Company

CLARK, JOHN. "A History of Arkansas Power & Light Company." D.C.S. Thesis, Harvard University, Graduate School of Business Administration, 1960. 288 pp.

Ashland Oil & Refining Company

MASSIE, JOSEPH L. *Blazer and Ashland Oil; A Study in Management.* [Lexington] University of Kentucky Press, 1960. 253 pp.

A study of the managerial processes during the thirty-three years of Paul G. Blazer's administration.

Associations. See entries for **National Association of Manufacturers; Railway Progress Institute.**

Audit Bureau of Circulations. See entry for **Advertising.**

Auditing

STEELE, ALLAN T. "A History of Auditing in the United States, 1914 to 1957." Ph.D. Thesis, University of Texas, 1960. 245 pp.

Automobile Industry

DURYEA, J. FRANK, "America's First Gasoline Automobile," *Michigan Business Review* (University of Michigan, School of Business Administration) Vol. XII, No. 2 (March 1960) pp. 26–31.

See also entries for **Henry Ford; George Romney; Preston T. Tucker.**

George T. Baker (president of National Airlines)

REISER, CARL. "George T. Baker's Feud With the World," *Fortune*, Vol. LXI, No. 3 (March 1960) pp. 154–158+.

Ball Brothers Company

BALL, EDMUND F. *From Fruit Jars to Satellites; The Story of Ball Brothers Company Incorporated.* N.Y., Newcomen Society in North America, 1960. 24 pp.

Banking

"Banking's American Story," *Banking*, Vol. LIII, No. 5 (November 1960) pp. 42–58; No. 6 (December 1960) pp. 43–51.

First two of a series of short illustrated articles on the development of modern bank services. Part 1 covers personalities in American financial history; Part 2 is on "Banks and the Dollar Value."

BURRELL, O. K. "Footnotes to a History of Banking in Oregon," *Oregon Business Review* (University of Oregon, Bureau of Business Research) Vol. XIX, No. 1 (January 1960) pp. 1–9.

Several episodes taken from the years when banking was a small-scale local enterprise.

MEYERS, CECIL H. "Financing a Frontier City: The Pioneer Banks of Duluth," *Minnesota History*, Vol. 37, No. 3 (September 1960) pp. 119–125.

See also entries for **First National Bank of Denver; Marine National Exchange Bank.**

Jacob Barkman (merchant)

NEWBERRY, FARRAR. "Jacob Barkman," *Arkansas Historical Quarterly*, Vol. XIX, No. 4 (Winter 1960) pp. 314–324.

Barter. See entry for **Asa Shepardson.**

L. L. Bean (sporting goods merchant)

BEAN, L. L. *My Story; The Autobiography of a Down-East Merchant.* Freeport, Maine, The Author, 1960. 163 pp.

Hermon F. Bell

BELL, HERMON F. *Reminiscences of a Certified Public Accountant.* N.Y., Priv. Print. by Ronald Press, 1959. 182 pp.

Bellaire, Zanesville and Cincinnati Railroad

SCHNEIDER, NORRIS F. *Bent, Zigzag and Crooked; Ohio's Last Narrow Gauge Railroad.* Zanesville, Ohio, The Author, 1960. 20 pp.

Beverage Industry. See entry for **Coca-Cola Company.**

Sardis Birchard

MACDONALD, CURTIS C. "Sardis Birchard — Indian Trader," *Northwest Ohio Quarterly*, Vol. XXXII, No. 1 (Winter 1959–60) pp. 15–24.

Torger Birkeland

BIRKELAND, TORGER. *Echoes of Puget Sound; Fifty Years of Logging and Steam-Boating.* Caldwell, Id., Caxton Printers, 1960. 251 pp.

Gerald W. Blakeley, Jr. (president of Cabot, Cabot & Forbes — real estate)

LINCOLN, FREEMAN. "After the Cabots — Jerry Blakeley," *Fortune*, Vol. LXII, No. 5 (November 1960) pp. 171–176+.

Paul G. Blazer. See entry for **Ashland Oil & Refining Company.**

John Gray Blount (merchant and shipper)

KEITH, ALICE B., ed. *The John Gray Blount Papers*. Raleigh, N.C., State Department of Archives and History, 1952, 1959. 2 vols.

Covers papers written by John Gray Blount from 1769 to 1789 and from 1790 to 1795. A third volume will complete this series.

Richard Blundell (British factor agent)

TYRER, FRANK. "Richard Blundell in Virginia and Maryland," *Virginia Magazine of History and Biography*, Vol. 68, No. 4 (October 1960) pp. 429–447.

Bolling Family

BOLLING, RUTH J. *Tales of a Texas Ranch*. San Antonio, Texas, Naylor Company, 1959. 130 pp.

Frank Bond

GRUBBS, FRANK H. "Frank Bond, Gentleman Sheepherder of Northern New Mexico, 1883–1915," *New Mexico Historical Review*, Vol. XXXV, No. 3 (July 1960) pp. 169–199; No. 4 (October 1960) pp. 293–308.

Milton Bradley Company

SHEA, JAMES J. (Charles Mercer, collaborator). *It's All in the Game*. N.Y., G. P. Putnam's Sons, 1960. 284 pp.

This is the story both of Milton Bradley and of the Company he founded.

John Breckinridge

HARRISON, LOWELL H. "John Breckinridge of Kentucky; Planter, Speculator, and Businessman," *Filson Club History Quarterly*, Vol. 34, No. 3 (July 1960) pp. 205–227.

Brush Manufacturers. See entry for **Alfred C. Fuller.**

Claude W. Bryant

BRYANT, CLAUDE W. *Lumbering Along in Texas*. San Antonio, Texas, Naylor Company, 1960. 201 pp.

Business and Government

LAFEBER, WALTER. "The American Business Community and Cleveland's Venezuelan Message," *Business History Review*, Vol. XXXIV, No. 4 (Winter 1960) pp. 393–402.

Business History

"The Business History," *Atlanta Economic Review*, Vol. X, No. 10 (October 1960) pp. 11–15; No. 11 (November 1960) pp. 10–12.

First two of a series of articles: Pt. 1, "Definitions and Origins of Business History," by Ralph N. Traxler, Jr.; Pt. 2, "Business History in Academic Curricula: Central or Peripheral," by A. K. Steigerwalt.

CARY, WILLIAM. "A Businessman Looks at Business History" [Letter to Members of the Business History Foundation], June 17, 1960, 5 pp.

An address delivered by an executive of Northwestern Mutual Life Insurance Company before the Business History Conference, February 27, 1960.

CHALMERS, DAVID. "From Robber Barons to Industrial Statesmen: Standard Oil and the Business Historian," *American Journal of Economics and Sociology*, Vol. 20, No. 1 (October 1960) pp. 47–58.

"Based upon a paper prepared for the University of Florida Faculty Seminar in American Civilization, in its series on 'Value Relativism'." — p. 47.

Business History — Bibliography

DANIELLS, LORNA M. "Studies in Enterprise, 1959: A Selected Bibliography," *Business History Review*, Vol. XXXIV, No. 2 (Summer 1960) pp. 217–239.

LOVETT, ROBERT W. "Business Manuscripts at Baker Library, Harvard Graduate School of Business Administration," *Business History Review*, Vol. XXXIV, No. 3 (Autumn 1960) pp. 345–355.

STEVENS, HARRY R. "Recent Writings on Midwestern Economic History," *Ohio Historical Quarterly*, Vol. 69, No. 1 (January 1960) pp. 1–31.

Brief discussion of selected works published from 1944 to 1959 in the following areas: Land; Agriculture; Pastoral Economy; Primary Industries; Transportation, Commerce and Communications; Industry, Business and Finance.

See also entries for **Cattle Industry — Bibliography; Insurance, Life — Bibliography; Petroleum Industry — Bibliography.**

Business History — Collections

NEWMAN, PETER C. *Flame of Power; Intimate Profiles of Canada's Greatest Businessmen*. Toronto, Longmans, Green, 1959. 263 pp.

Sketches of eleven Canadian businessmen: Sir Herbert Holt; Lord Strathcona; Sir William Van Horne; Sir James H. Dunn; Sir Harry Oakes; Lionel A. Forsyth; Gilbert La Bine; the Steinberg Brothers; Dr. Hans T. F. Lundberg; Donald Gordon; Edward P. Taylor.

WOODS, CLINTON. *Ideas That Became Big Business*. Baltimore, Founders, Inc., 1959. 414 pp.

Brief sketches of 206 companies that transformed ideas into practical and useful service to society — Cf. p. vi.

Business History, Foreign — Bibliography

BARKER, T. C. [and others]. *Business History*. London, The Historical Association, 1960. 36 pp.

"Bibliography of Business History" (pp. 23–29) is a selected list of full-scale histories of British businesses.

BUSINESS ARCHIVES COUNCIL. *The First Five Hundred. Chronicles and House Histories of Companies and Organisations in the Business Archives Library*. London, 1959. 22 pp.

A list of 500 British company histories, arranged alphabetically by industry.

CHARTERED INSTITUTE OF SECRETARIES OF JOINT STOCK COMPANIES AND OTHER PUBLIC BODIES, LONDON. *A List of Company Histories in the Chartered Institute of Secretaries Library*. London, 1960. 24 pp.

A list of British company histories, arranged alphabetically by industry.

INOUE, T., AND Y. IKUSHIMA. "Company Histories in Japan; Materials for Business History," *Kobe Economic & Business Review. 6th Annual Report* (Kobe University, Research Institute for Economics and Business Administration) 1959, pp. 157–188.

An annotated list of Japanese company histories, classified by industries.

MINGAY, G. E., AND JOAN THIRSK, comps. "List of Publications on the Economic History of Great Britain and Ireland," *Economic History Review*, Second Series, Vol. XII, No. 3 (April 1960) pp. 519–552.

A three-part annual bibliography: original documents; books and pamphlets; articles in periodicals.

NEUSS, ERICH. "Werksgeschichte und Unternehmerbiographie in Mitteldeutschland, Insbesondere im Bezirk der Industrie- und Handelskammer Halle a.d.S.," *Tradition*, Vol. 5, No. 4/5 (August/October 1960) pp. 217–230.

A bibliographic article with a list of the 90 company histories discussed, on pp. 227–230.

ZORN, WOLFGANG. "Neuerscheinungen zur Deutschen Bankgeschichte, 1956–1959," *Tradition*, Vol. 5, No. 4/5 (August/October 1960) pp. 231–235.

A bibliographic article with the 18 bank histories discussed, listed on pp. 231–232.

Business History Research and Writing

BARKER, T. C. [and others]. *Business History*. London, The Historical Association, 1960. 36 pp.

Three British historians list "some prerequisites for tackling a business history, indicate where to find relevant evidence," and include a selected bibliography of histories of British businesses on pp. 23–29.

COLUMBIA UNIVERSITY. ORAL HISTORY RESEARCH OFFICE. *The Oral History Collection of Columbia University*. N.Y., 1960. 111 pp.

A catalogue of the Oral History Collection, established in 1948 "to obtain, from the lips and papers of living Americans who have led significant lives, a fuller record of their participation in the political, economic and cultural life of the last sixty years. . . ." Business is one of about fifteen subject fields covered. The arrangement is alphabetical, by individual interviewed, and each entry briefly describes the scope of subjects covered.

CRANDALL, RUTH. *The Research Center in Entrepreneurial History at Harvard University, 1948–1958; A Historical Sketch*. Cambridge, Mass. [Priv. Print.] 1960. 67 pp.

JOHNSON, ARTHUR M., AND BARRY E. SUPPLE. "The Businessman Speaks to Historians," *Business History Review*, Vol. XXXIV, No. 2 (Summer 1960) pp. 241–247.

Fuller E. Callaway

EDGE, ARTHUR B., JR. "Fuller E. Callaway: Founder of Callaway Mills," *Cotton History Review*, Vol. 1, No. 2 (April 1960) pp. 35–46.

Condensation of a Newcomen Society address, published in 1954.

Canada. See entries for **Hudson's Bay Company; International Nickel Company of Canada; John A. McDougall; Paper and Allied Products; Steel Company of Canada;** also book by Newman under **Business History – Collections;** and article by Cross under **Lumber Industry.**

Canals. See entry for **Chesapeake and Delaware Canal; Erie Canal;** and also book by Goodrich under **Railroads.**

Andrew Carnegie

HEILBRONER, ROBERT L. "Epitaph for the Steel Master," *American Heritage*, Vol. XI, No. 5 (August 1960) pp. 4–9+.

Cattle Industry

DALE, EDWARD E. *The Range Cattle Industry's Ranching on the Great Plains From 1865 to 1925*. Norman, University of Oklahoma Press, 1960. 207 pp.

Reissue of a book originally published in 1930.

GRAHAM, RICHARD. "The Investment Boom in British-Texan Cattle Companies, 1880–1885," *Business History Review*, Vol. XXXIV, No. 4 (Winter 1960) pp. 421–445.

See also entries for **Bolling Family; Comanche County Cattle Pool; Richard Trimble.**

Cattle Industry – Bibliography

ADAMS, RAMON F. *The Rampaging Herd; A Bibliography of Books and Pamphlets on Men and Events in the Cattle Industry*. Norman, University of Oklahoma Press, 1959. 463 pp.

Cheese Industry

VAN CLEEF, FRANK C. "The Rise and Decline of the Cheese Industry in Lorain County," *Ohio Historical Quarterly*, Vol. 69, No. 1 (January 1960) pp. 32–57.

Chemical Industry. See entries for **Air Products, Inc.; Colgate Family; Hercules Powder Company; Salem Oil & Grease Company.**

Chesapeake and Delaware Canal

GRAY, RALPH D. "The Early History of the Chesapeake and Delaware Canal," *Delaware History*, Vol. IX, No. 1 (April 1960) pp. 66–98.

The conclusion of a three-part article. Earlier parts appeared in March and September 1959 issues.

GRAY, RALPH D. "Philadelphia and the Chesapeake and Delaware Canal, 1769–1823," *Pennsylvania Magazine of History and Biography*, Vol. LXXXIV, No. 4 (October 1960) pp. 401–423.

Clothing Industry

FELDMAN, EGAL. *Fit for Men: A Study of New York's Clothing Trade*. Washington, D.C., Public Affairs Press, 1960. 138 pp.

See also Russell Manufacturing Company.

Coca-Cola Company

KAHN, ELY J., JR. *The Big Drink; The Story of Coca-Cola*. N.Y., Random House, 1960. 174 pp.

Robert Coleman

KLEIN, FREDERIC S. "Robert Coleman, Millionaire Ironmaster," *Journal of the Lancaster County Historical Society*, Vol. 64, No. 1 (Winter 1960) pp. 17–33.

Colgate Family

HARDIN, SHIELDS T. *The Colgate Story*. N.Y., Vantage Press, 1959. 214 pp.

Five generations of a soap making family and their religious, educational and humanitarian contributions.

College Hill Railroad

WHITE, JOHN H. "The College Hill Narrow Gauge," *Bulletin, Historical and Philosophical Society of Ohio*, Vol. 18, No. 4 (October 1960) pp. 227–239.

Columbia River Paper Company

DONNELLY, FLORENCE. "Camas Paper Mill, First in Washington," *The Paper Maker* (Paper Makers Chemical Dept., Hercules Powder Company) Vol. 29, No. 2 (September 1960) pp. 12–28.

Comanche County Cattle Pool

EINSEL, MARY. "Some Notes on the Comanche Cattle Pool," *Kansas Historical Quarterly*, Vol. XXVI, No. 1 (Spring 1960) pp. 59–66.

Consolidated Foods Corporation

"The Consolidated Foods Story," *Supermarket News*, Vol. 9, No. 23 (June 6, 1960) p. 38; No. 24 (June 13, 1960) pp. 30–32; No. 25 (June 20, 1960) p. 18.

Construction and Construction Materials. **See entries for Merritt-Chapman & Scott Corporation; National Gypsum Company.**

Cooperative Grange League Federation Exchange

KNAPP, JOSEPH G. *Seeds That Grew; A History of the Cooperative Grange League Federation Exchange*. Hinsdale, N.Y., Anderson House, 1960. 535 pp.

Cooperatives. **See entries for Cooperative Grange League Federation Exchange; Florida Citrus Exchange; Murray D. Lincoln; Northwestern Cooperative Sales Association.**

Erastus Corning (railroad promoter, merchant, etc.)

NEU, IRENE D. *Erastus Corning, Merchant and Financier, 1794–1872*. Ithaca, N.Y., Cornell University Press, 1960. 212 pp.

Corporations — History. **See entry for Business History.**

Cotton Industry

Cotton History Review, Vol. I, No. 1 — Auburn, Alabama, Auburn University, 1960–

A new quarterly periodical published by the Cotton History Group at Auburn University. Articles on the industry are: "The Origins of Southern Cotton Manufacture, 1807–1816," by R. W. Griffin, in Vol. I, No. 1 (January 1960) pp. 5–12; "The Ante-Bellum Kentucky Cotton Industry, 1790–1860," by S. Hammond, in Vol. I, No. 2 (April 1960) pp. 47–55; "The Development of Textiles in the South Carolina Piedmont Before 1860," by E. M. Lander, in Vol. I, No. 3 (July 1960) pp. 88–100; "Cotton, The First Problem of United States Agriculture," by Ernest F. Patterson, in Vol. I, No. 4 (October 1960) pp. 151–174. Other articles are listed under name of specific company or individual.

DAVIS, LANCE E. "The New England Textile Mills and the Capital Markets: A Study of Industrial Borrowing 1840–1860," *Journal of Economic History*, Vol. XX, No. 1 (March 1960) pp. 1–30.

GRIFFIN, RICHARD W. "Manufacturing Interests of Mississippi Planters, 1810–1832," *Journal of Mississippi History*, Vol. XXII, No. 2 (April 1960) pp. 110–122.

See also Anniston Manufacturing Company; Fuller E. Callaway; Dan River Mills; Graniteville Manufacturing Company; Kentucky Society for the Encouragement of Manufacturers; Naumkeag Steam Cotton Company; Samuel Slater; Spartan Mills.

L. O. Crosby (lumber manufacturer)

CROSBY, L. O., JR. *Crosby; A Story of Men and Trees*. N.Y., Newcomen Society in North America, 1960. 32 pp.

Dan River Mills

ERWIN, WILLIAM J. "Dan River Mills: The Story of Exciting Years in Textiles: 1882–1960," *Cotton History Review*, Vol. I, No. 3 (July 1960) pp. 101–108.

SMITH, ROBERT S., *Mill on the Dan; A History of Dan River Mills, 1882–1950*. Durham, N.C., Duke University Press, 1960. 570 pp.

Charles G. Dawes (financier and politician)

SHERMAN, RICHARD G. "Charles G. Dawes: An Entrepreneurial Biography, 1865–1951." Ph.D. Thesis, State University of Iowa, 1960. 384 pp.

Harry Defoe

GLUNTZ, MARVIN H. "Harry Defoe, Shipbuilder Extraordinary," *Inland Seas*, Vol. 16, No. 2 (Summer 1960) pp. 88–94.

Denver and Rio Grande Railroad

ATHEARN, ROBERT G. "Captivity of the Denver and Rio Grande," *Colorado Magazine*, Vol. XXXVII, No. 1 (January 1960) pp. 39–58.

Denver and Rio Grande Western Railroad

HUNGERFORD, JOHN B. *Narrow Gauge to Silverton*. 5th Edition. Reseda, Calif., Hungerford Press, 1959. 36 pp.

Department Stores

DEPARTMENT STORE ECONOMIST. "Fifty Years of Retailing," *Department Store Economist*, Vol. 24, No. 1 (January 1961) Entire Issue.

A special issue published in recognition of the 50th Anniversary of the National Retail Merchants Association.

FERRY, JOHN W. *A History of the Department Store*. N.Y., Macmillan, 1960. 387 pp.

This history covers both the United States and the British Commonwealth. Part Two, "Development in the United States" (pp. 33–187) includes brief historical sketches of 38 stores.

"Guideposts to Tomorrow," *Stores* (National Retail Merchants Association) Vol. 42, No. 5–11 (May–December 1960).

In observance of NRMA's 50th year, the Association included a series of articles examining "the past of retailing with a view to understanding its future." Beginning with September issue and continuing through March 1961, one-page sketches of several NRMA founder-stores are also in each issue.

See also entry for **Miller & Rhoads, Inc.; Rich's, Inc.**

Charles H. Dow

BISHOP, GEORGE W., JR. *Charles H. Dow and the Dow Theory.* N.Y., Appleton-Century-Crofts, 1960. 359 pp.

BISHOP, GEORGE W., JR. "New England Journalist: Highlights in the Newspaper Career of Charles H. Dow," *Business History Review*, Vol. XXXIV, No. 1 (Spring 1960) pp. 77–93.

Daniel Drawbaugh (inventor)

HARDER, WARREN J. *Daniel Drawbaugh; The Edison of the Cumberland Valley.* Philadelphia, University of Pennsylvania Press, 1960. 228 pp.

Economic History — Bibliography. See entry for **Business History — Bibliography.**

Richard Hathaway Edmonds (industrial journalist)

IDE, YOSHIMITSU. "The Significance of Richard Hathaway Edmonds and His *Manufacturers' Record* in the New South." Ph.D. Thesis, University of Florida, 1959. 364 pp.

Charles Eisler

EISLER, CHARLES. *The Million-Dollar Bend; The Autobiography of the Benefactor of the Radio Tube and Lamp Industry.* N.Y., William-Frederick Press, 1960. 306 pp.

Electric Railroads. See entry for **Railroads, Electric.**

Electric Utilities Executives. See entry for **Sidney Z. Mitchell.**

Engineering. See entries for **Lockwood, Greene Engineers, Inc.; David B. Steinman.**

Enid, Ochiltree and Western Railroad

CORRELL, CARRIE W., AND SPENCER P. WHIPPO. "Enid, Ochiltree and Western Railroad," *Panhandle-Plains Historical Review*, Vol. XXXIII (1960) pp. 69–107.

Equitable Life Assurance Society of the United States

OATES, JAMES F., JR. *For All Time; The Equitable Life Assurance Society of the United States (1859–1959).* N.Y., Newcomen Society in North America, 1960. 24 pp.

Erie Canal

CHALMERS, HARVEY. *The Birth of the Erie Canal.* N.Y., Bookman Associates, 1960. 195 pp.
A fictionalized history.

RUBIN, JULIUS. "Imitation by Canal or Innovation by Railroad: A Comparative Study of the Response to the Erie Canal in Boston, Philadelphia, and Baltimore." Ph.D. Thesis, Columbia University, 1959. 430 pp.

Sherman M. Fairchild (airplane and camera manufacturer)

"Multifarious Sherman Fairchild," *Fortune*, Vol. LXI, No. 5 (May 1960) pp. 171–174+.

Financiers. See entries for **Charles G. Dawes; George W. Perkins; Thomas B. Slick.**

Albert Fink (railroad engineer)

GILCHRIST, D. T. "Albert Fink and the Pooling System," *Business History Review*, Vol. XXXIV, No. 1 (Spring 1960) pp. 24–49.

Firearms

KAUFFMAN, HENRY J. *The Gunsmith.* Watkins Glen, N.Y., Century House, 1959. 56 pp. (Early American Occupation Series).

"A Treatise on the art of the Gunsmith in the Eighteenth and early Nineteenth century, together with a description of his tools and his Establishments" — p. 2.

See also entry for **Marlin Firearms Company.**

First National Bank of Denver

EVANS, JOHN. *From Stagecoach to Space Age; 100 Years of Banking in the Rocky Mountain West (1860–1960).* N.Y., Newcomen Society in North America, 1960. 24 pp.

Henry M. Flagler

CORLISS, CARLTON J. "Henry M. Flagler — Railroad Builder," *Florida Historical Quarterly,* Vol. XXXVIII, No. 3 (January 1960) pp. 195–205.

Florida Citrus Exchange

HOPKINS, JAMES T. *Fifty Years of Citrus; The Florida Citrus Exchange: 1909–1959.* Gainesville, University of Florida Press, 1960. 279 pp.

Food Industries. See entries for **Cheese Industry; Consolidated Foods Corporation; Florida Citrus Exchange; Meat Packing; Pet Milk Company.**

Henry Ford

HOLLANDER, STANLEY C., AND GARY A. MARPLE. *Henry Ford: Inventor of the Supermarket?* East Lansing, 1960. 54 pp. (Michigan State University, Bureau of Business and Economic Research. Marketing and Transportation Paper, No. 9).

An abridgement, with title "Henry Ford, Grocer," appears in *Business Topics* (Michigan State University, Graduate School of Business Administration) Vol. 8, No. 4 (Autumn 1960) pp. 45–57.

Alfred C. Fuller (founder of Fuller Brush Company)

FULLER, ALFRED C. (Hartzell Spence, collaborator). *A Foot in the Door; The Life Appraisal of the Original Fuller Brush Man.* N.Y., McGraw-Hill, 1960. 250 pp.

Eugene D. Funk (founder of Funk Brothers Seed Company)

CAVANAGH, HELEN M. *Seed, Soil and Science; The Story of Eugene D. Funk.* Chicago, Lakeside Press, 1959. 544 pp.

Fur Trading

HALE, NATHANIEL C. *Pelts and Palisades; The Story of Fur and the Rivalry for Pelts in Early America.* Richmond, Va., Dietz Press, 1959. 219 pp.

See also entries for **William T. Hamilton; Alexander Henry; Hudson's Bay Company; Sublette Family.**

Furniture Industry

DORMAN, CHARLES G. "Delaware Cabinetmakers and Allied Artisans, 1655–1855," *Delaware History,* Vol. IX, No. 2 (October 1960) Entire Issue.

Consists of brief biographies, alphabetically arranged.

Bertin C. Gamble (developed chain of general merchandise stores)

HAMILL, KATHARINE. "Bert Gamble, Main Street Merchant," *Fortune,* Vol. LXII, No. 4 (October 1960) pp. 180–182+.

Gas Industry

MITTS, DOROTHY M. *A History of Gas Service in Port Huron, 1870–1958.* Port Huron, Jensen-Townsend Printing Company, 1958. 131 pp.

General Dynamics Corporation (aircraft, submarines, guided missiles, etc.)

GENERAL DYNAMICS CORPORATION. *Dynamic America; A History of General Dynamics Corporation and Its Predecessor Companies.* [N.Y.?] General Dynamics Corporation and Doubleday & Company, 1960. 426 pp.

This is also the illustrated story of American scientific, industrial and technological development from 1879 to the present.

General Electric Company

DUNN, OSCAR L. *Transportation and Automation; General Electric in Greater Erie.* N.Y., Newcomen Society in North America, 1960. 28 pp.

Jean Paul Getty (oilman)

HEWINS, RALPH. *The Richest American, J. Paul Getty.* N.Y., Dutton, 1960. 404 pp.

Glass Industry

REVI, ALBERT C. "The Development of the Pressed Glass Industry in America," *Glass Industry,* Vol. 41, No. 5 (May 1960) pp. 268–273+.

See also entries for **Ball Brothers Company; Omro Glass Company; Ruggles and Dunbar.**

Goodyear Tire & Rubber Company

SHEEHAN, ROBERT. "And Goodyear Sells It," *Fortune,* Vol. LXII, No. 4 (October 1960) pp. 162–166+.

Graniteville Manufacturing Company

WALLACE, DAVID D. "The Founding of Graniteville," *Cotton History Review,* Vol. 1, No. 1 (January 1960) pp. 19–25.

"This is an excerpt from a manuscript history of the Graniteville Company in the possession of the Company." – [p. 3].

William T. Hamilton

HAMILTON, WILLIAM T. *My Sixty Years in the Plains, Trapping, Trading and Indian Fighting.* From the Original Edition [1905] by E. T. Sieber. Norman, University of Oklahoma Press, 1960. 184 pp.

Hartford Fire Insurance Company

DANIEL, HAWTHORNE. *The Hartford of Hartford; An Insurance Company's Part in a Century and a Half of American History.* N.Y., Random House, 1960. 312 pp.

Hawaiian Airlines

LEWIS, ARTHUR D. *Hawaiian Airlines; America's Pioneer Carrier in the Pacific.* N.Y., Newcomen Society in North America, 1960. 24 pp.

Ernest Henderson

HENDERSON, ERNEST. *The World of "Mr. Sheraton."* N.Y., David McKay, 1960. 277 pp.

Alexander Henry (fur trader with North West Company)

O'MEARA, WALTER. *The Savage Country.* Boston, Houghton Mifflin, 1960. 308 pp.

Hercules Powder Company

PENROSE, EDITH T. "The Growth of the Firm — a Case Study: The Hercules Powder Company," *Business History Review,* Vol. XXXIV, No. 1 (Spring 1960) pp. 1–23.

Hobart Manufacturing Company (food preparing machines)

MEEKER, DAVID A. *Better Eating . . . From Start to Finish; The Story of the Hobart Manufacturing Company.* N.Y., Newcomen Society in North America, 1960. 32 pp.

Hotel Executives. See entries for **Ernest Henderson; Laurence and Preston R. Tisch.**

Howard Shipyards Company

FISHBAUGH, CHARLES P. "Sixty Years of Business History in Indiana Shipyard," *Indiana Business Review* (Indiana University, Bureau of

Business Research), Vol. XXXV (October 1960) pp. 7–11+.

Hudson's Bay Company

MYERS, FRANK A., comp. "History of the Hudson's Bay Company Post at Little Current, Ontario," *Inland Seas*, Vol. 16, No. 1 (Spring 1960) pp. 47–59.

The last of a four-part compilation of letters and documents. Earlier parts appeared in issues for 1959.

TWAY, DUANE C. "The Wintering Partners and the Hudson's Bay Company, 1867–1879," *Canadian Historical Review*, Vol. XLI, No. 3 (September 1960) pp. 215–223.

Indian Traders. See entry for **Sardis Birchard.**

Industrial History

CALDWELL, EDWIN L. "The Development of Manufacturing in Texas Since 1919." Ph.D. Thesis, Harvard University, 1960. 2 vols.

HARNSBERGER, JOHN L. "Land, Lobbies, Railroads and the Origin of Duluth," *Minnesota History*, Vol. 37, No. 3 (September 1960) pp. 89–100.

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LANDER, ERNST M., JR. "Charleston: Manufacturing Center in the Old South," *Journal of Southern History*, Vol. XXVI, No. 3 (August 1960) pp. 330–351.

MILLER, GLENN H., JR. "Business and Agricultural Conditions in Kansas, 1871–1888, as Reported by a New England Mortgage Broker" [Charles M. Hawkes], *Kansas Historical Quarterly*, Vol. XXVI, No. 1 (Spring 1960) pp. 67–73.

"St. Louis Business and Industry, 1877," *Bulletin of the Missouri Historical Society*, Vol. XVI, No. 2 (January 1960) pp. 151–172.

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SEVERSON, ROBERT F., JR. "The American Manufacturing Frontier, 1870–1940," *Business History Review*, Vol. XXXIV, No. 3 (Autumn 1960) pp. 356–372.

WEISS, HARRY B., AND GRACE M. WEISS. *Forgotten Mills of Early New Jersey; Oil, Plaster, Bark, Indigo, Fanning, Tilt, Rolling and Slitting Mills, Nail and Screw Making.* Trenton, N.J., New Jersey Agricultural Society, 1960. 94 pp.

See also entry for **General Dynamics Corporation.**

Industrial Management

AITKEN, HUGH G. J. *Taylorism at Watertown Arsenal; Scientific Management in Action, 1908–1915.* Cambridge, Harvard University Press, 1960. 269 pp.

"An analysis of the installation of the Taylor system in a particular manufacturing plant, and of the reactions to that installation." — p. vi.

JENKS, LELAND H. "Early Phases of the Management Movement," *Administration Science Quarterly*, Vol. 5, No. 3 (December 1960) pp. 421–447.

Industrial Relations

WOOD, NORMAN J. "Industrial Relations Policies of American Management, 1900–1933," *Business History Review*, Vol. XXXIV, No. 4 (Winter 1960) pp. 403–420.

Insurance, Fire. See entry for **Hartford Fire Insurance Company.**

Insurance, Life. See entries for **Equitable Life Assurance Society of the United States; Life Insurance Company of Georgia.**

Insurance, Life – Bibliography

INSURANCE SOCIETY OF NEW YORK. LIBRARY. *Life Insurance Catalog.* Boston, G. K. Hall, 1960. 352 pp.

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Insurance Men. See entries for **Murray D. Lincoln; George W. Perkins.**

International Nickel Company of Canada

THOMPSON, JOHN F., AND NORMAN BEASLEY. *For the Years to Come; A Story of International Nickel of Canada.* N.Y., G. P. Putnam's Sons, 1960. 374 pp.

Interurbans. See entry for **Railroads, Electric.**

Johnson, Johonnot and Company (merchants)

DORSEY, RHODA M. "The Conduct of Business in Baltimore, 1783–1785: As Seen in the Letterbook of Johnson, Johonnot, and Co.," *Maryland Historical Magazine,* Vol. 55, No. 3 (September 1960) pp. 230–242.

Kentucky Society for the Encouragement of Manufacturers

TODD, GEORGE D. "The First Cotton Factory in the West," *Cotton History Review,* Vol. I, No. 4 (October 1960) pp. 195–221.

James H. Kyner (railroad contractor)

KYNER, JAMES H. (Hawthorne Daniel, collaborator). *End of Track.* Lincoln, University of Nebraska Press, 1960. 280 pp.

Reprint of a book originally published in 1937.

La Crosse and Minnesota Steam Packet Company

TOOLE, ROBERT C. "Behind the Lines: The La Crosse Packet Company During the Civil War," *Business History Review,* Vol. XXXIV, No. 2 (Summer 1960) pp. 170–193.

Lake Erie Excursion Company

ZILLMER, A. T. "The Lake Erie Excursion Company," *Inland Seas,* Vol. 16, No. 4 (Winter 1960) pp. 275–282.

Lake George and Muskegan River Railroad

KEENAN, HUDSON. "America's First Successful Logging Railroad," *Michigan History,* Vol. 44, No. 3 (September 1960) pp. 292–302.

Albert D. Lasker (advertising executive)

GUNTHER, JOHN. *Taken at the Flood; The Story of Albert D. Lasker.* N.Y., Harper, 1960. 368 pp.

Robert G. Le Tourneau (earth-moving machinery manufacturer)

LE TOURNEAU, R. G. *Mover of Men and Mountains; The Autobiography of R. G. Le Tourneau.* Englewood Cliffs, N.J., Prentice-Hall, 1960. 282 pp.

Life Insurance Company of Georgia

MANNERS, GEORGE E. "History of Life Insurance Company of Georgia, 1891–1955." Ph.D. Thesis, Emory University, 1959. 525 pp.

Murray D. Lincoln (insurance executive and advocate of consumer cooperation)

LINCOLN, MURRAY D. (David Karp, collaborator). *Vice President in Charge of Revolution.* N.Y., McGraw-Hill, 1960. 342 pp.

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LINCOLN, SAMUEL B. *Lockwood Greene; The History of an Engineering Business, 1832–1958.* Brattleboro, Vt., Stephen Greene Press, 1960. 858 pp.

P. Lorillard Company

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Louisville & Nashville Railroad

HERR, KINCAID A. *The Louisville & Nashville Railroad, 1850–1940, 1941–1959.* [3d Edition]. Louisville, L. & N. Magazine, 1959. 234 pp.

Lumber Industry

CROSS, MICHAEL S. "The Lumber Community of Upper Canada, 1815–1867," *Ontario History,* Vol. LII, No. 4 (Autumn 1960) pp. 213–233.

MASSEY, RICHARD W., JR. "A History of the Lumber Industry in Alabama and West Florida, 1880–1914." Ph.D. Thesis, Vanderbilt University, 1960. 233 pp.

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John A. McDougall

MCDOUGALL, JOHN F. "John A. McDougall, Trader," *Alberta Historical Review,* Vol. 8, No. 3 (Summer 1960) pp. 16–26.

Machinery and Metal Products. See entries for **Agricultural Machinery; Air Products, Inc.; American Can Company; General Dynamics Corporation; Hobart Manufacturing Company; Robert G. Le Tourneau; Charles W. Perelle; Pratt & Whitney Company; Samuel Slater; Sperry Rand Corporation; Steam Power; Technology.**

Machinery, Electrical, and Equipment. See entries for **Daniel Drawbaugh; Charles Eisler; General Electric Company; Zenith Radio Corporation.**

Finn H. Magnus (harmonica manufacturer)

HUNTER, MARK. *The Finn Magnus Story.* N.Y., Odin Press, 1960. 485 pp.

A success story.

Management. See entries for **Ashland Oil & Refining Company; Industrial Management; Industrial Relations; Organization; Spartan Mills.**

Marine National Exchange Bank

CREATIVE WISCONSIN. "The Story of the Marine." Reprinted from *Creative Wisconsin,* Vol. VI, No. 2 (Summer 1959) [24] pp.

Marlin Firearms Company

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Meat Packing

ARMS, RICHARD G. "From Disassembly to Assembly. Cincinnati: The Birthplace of Mass-Production," *Bulletin, Historical and Philosophical Society of Ohio,* Vol. XVII, No. 3 (July 1959) pp. 195–203.

RENNER, G. K. "The Kansas City Meat Packing Industry Before 1900," *Missouri Historical Review,* Vol. LV, No. 1 (October 1960) pp. 18–29.

Merchants. See entries for **John Gray Blount; Richard Blundell; Jacob Barkman; Erastus Corning; Johnson, Johonnot and Company; John A. McDougall; John Norton & Sons; Thomas Rasberry; Samuel Vetch.**

Merritt-Chapman & Scott Corporation (heavy construction, marine salvage, etc.)

MERRITT-CHAPMAN & SCOTT CORPORATION. *1860–1960, a Century of Pioneering.* N.Y., 1960. 20 pp.

A special advertising supplement published in the New York *Times,* March 20,

1960, to mark the Corporation's centennial year. It also accompanied the MC&S *Annual Report*, 1959.

Miller & Rhoads, Inc. (department store)

RHOADS, WEBSTER S., JR. *Miller & Rhoads; Seventy-Five Years of Growth*. N.Y., Newcomen Society in North America, 1960. 36 pp.

Mining

CLEMENTS, ROGER V. "British Investment in the Trans-Mississippi West, 1870–1914, Its Encouragement, and the Metal Mining Interests," *Pacific Historical Review*, Vol. XXIX, No. 1 (February 1960) pp. 35–50.

LOCHER, JACK. "A History of Mining in Lancaster County: 1700–1900," *Journal of the Lancaster County Historical Society*, Vol. 64, No. 1 (Winter 1960) pp. 1–16.

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Sidney Z. Mitchell

MITCHELL, SIDNEY A. *S. Z. Mitchell and the Electrical Industry*. N.Y., Farrar, Straus & Cudahy, 1960. 178 pp.

Money

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Motion Picture Industry

CASSADY, RALPH, JR. "Monopoly in Motion Picture Production and Distribution: 1908–1915," *Southern California Law Review*, Vol. 32, No. 4 (Summer 1959) pp. 325–390.

Motors and Generators. See entry for **General Dynamics Corporation.**

Mt. Tamalpais and Muir Woods Railroad

WURM, THEODORE G., AND ALVIN C. GRAVES. *The Crookedest Railroad in the World; A History of the Mt. Tamalpais and Muir Woods Railroad of California*. [2d Revised Edition]. Berkeley, Calif., Howell-North, 1960. 123 pp.

Musical Instrument Manufacturers. See entry for **Finn H. Magnus.**

National Association of Manufacturers

STEIGERWALT, A. K. "The NAM and the Congressional Investigations of 1913: A Case Study in the Suppression of Evidence," *Business History Review*, Vol. XXXIV, No. 3 (Autumn 1960) pp. 335–344.

National Gypsum Company

RICHMOND, DEAN. *Design for Growth; The Story of National Gypsum Company in Commemoration of Its 35th Anniversary*. Buffalo, N.Y., The Company, 1960. 142 pp.

National Retail Merchants Association. See entry for **Department Stores.**

Naumkeag Steam Cotton Company

DICK, RUDOLPH C. "Pequot Mills: The Naumkeag Steam Cotton Company of Salem, Mass.," *Cotton History Review*, Vol. I, No. 3 (July 1960) pp. 109–117.

Condensation of a Newcomen Society address published in 1951.

New York, Ontario & Western Railway

HELMER, WILLIAM F. *O. & W.; The Long Life and Slow Death of the New York, Ontario & Western Railway*. Berkeley, Calif., Howell-North, 1959. 211 pp.

Newsprint Industry

ELLIS, L. ETHAN. *Newsprint: Pro-*

ducers, Publishers, Political Pressures. New Brunswick, N.J., Rutgers University Press, 1960. 305, 215 pp.

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Northern Indiana Public Service Company

MITCHELL, DEAN H. *Northern Indiana Public Service Company; Serving Today — Building for the Future in the Workshop of America.* N.Y., Newcomen Society in North America, 1960. 32 pp.

Northwestern Cooperative Sales Association

DONNAN, RAY F. "The History of the Northwestern Cooperative Sales Association. Part I," *Northwest Ohio Quarterly*, Vol. XXXII, No. 3 (Summer 1960) pp. 102–116.

John Norton & Sons

ROSENBLATT, SAMUEL M. "The House of John Norton & Sons: A Study of the Consignment Method of Marketing Tobacco From Virginia to England." Ph.D., Thesis, Rutgers University, 1960.

Oceanic Steamship Company

ADLER, JACOB. "The Oceanic Steamship Company: A Link in Claus Spreckels' Hawaiian Sugar Empire," *Pacific Historical Review*, Vol. XXIX, No. 3 (August 1960) pp. 257–269.

Omro Glass Company

NOYES, EDWARD. "The Window Glass Industry of Omro, Wisconsin," *Wisconsin Magazine of History*, Vol. 43, No. 2 (Winter 1959/60) pp. 109–118.

Organization

DALE, ERNEST. *The Great Organizers.* N.Y., McGraw-Hill, 1960. 277 pp.

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Paper and Allied Products

HAYES, FREDERIC C. "History of Corrugated in Canada," *Paperboard Packaging*, Vol. 45, No. 10 (October 1960) pp. 81–82.

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See also entries for **American Can Company; Columbia River Paper Company; William Rittenhouse; Nathan Sellers.**

Pemco Corporation

"Pemco's First Fifty Years," *Ceramic Industry*, Vol. 74, No. 3 (March 1960) pp. 58–59+.

James C. Penney

PENNEY, JAMES C. *View From the Ninth Decade; Jottings From a Merchant's Daybook.* N.Y., T. Nelson & Sons, 1960. 222 pp.

"This life story . . . emphasizes the importance and practicality of sound Christian principles in building a creative business career." — pp. 7–8.

Charles W. Perelle (president of American Bosch Arma Corporation)

"Charles Perelle's Spacemanship," *Fortune*, Vol. LIX, No. 1 (January 1960) pp. 112–115+.

George W. Perkins (financier, insurance company executive, political adviser)

GARRATY, JOHN A. *Right-Hand Man; The Life of George W. Perkins.* N.Y., Harper, 1960. 433 pp.

Pet Milk Company

GAMBLE, THEODORE R. *75 Years of Pet Milk Company (1885–1960); The Company That Founded an Industry.* N.Y., Newcomen Society in North America, 1960. 28 pp.

Petroleum Industry

CENTENNIAL SEMINAR ON THE HISTORY OF THE PETROLEUM INDUSTRY. *Oil's First Century; Papers Given at the Centennial Seminar on the History of the Petroleum Industry.* Harvard Business School, November 13–14, 1959. Boston, Harvard Graduate School of Business Administration, 1960. 147 pp.

The following papers were presented at this seminar: "Oil in Eastern Europe, 1840–1859," by R. J. Forbes; "Founders' Incentives: The Pre-Drake Refining Industry," by K. Beaton; "The Significance of the Drake Well," by P. H. Giddens; "The Rise of Big Business in the Oil Industry," by H. M. Larson; "Public Policy and Concentration in the Petroleum Industry, 1870–1911," by A. M. Johnson; "The Value of Business History in the Search for Oil," by W. E. Pratt; "Competitive Structure of the American Petroleum Industry, 1880–1911: A Reappraisal," by H. F. Williamson and R. L. Andreano; "A Case Study of Pricing Patterns," by E. P. Learned; "Competition in Technological Innovation: The Cracking Processes and Patents," by J. Enos; "The Recurring Spectre of Pipeline Divorcement," by G. S. Wolbert, Jr.; "Changes Under Law: The Sherman Act and the Oil Industry," by S. N. Whitney.

Energy and Man; A Symposium. N.Y., Appleton-Century-Crofts, 1960. 113 pp.

Included in this symposium, co-sponsored by Columbia's Graduate School of Business and the American Petroleum Institute, are the following two papers: "Energy in the History of Western Man," by Allan Nevins (pp. 1–22); "The Petroleum Revolution," by Robert G. Dunlop (pp. 23–51).

POLLARD, DARRELL, H. "The Development of Michigan's Oil Industry: 1860–1935." Ph.D. Thesis, University of Michigan, 1959. 350 pp.

See also entries for **Ashland Oil & Refining Company; Jean Paul Getty.**

Petroleum Industry — Bibliography

SWANSON, E. B., comp. *A Century of Oil and Gas in Books; A Descriptive Bibliography.* N.Y., Appleton-Century-Crofts, 1960. 214 pp.

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Pickett Coal Company

LOVETT, ROBERT W. "A Nineteenth-Century Beverly Partnership: The Pickett Coal Company, 1827–1910," *Essex Institute Historical Collections,* Vol. XCVI, No. 2 (April 1960) pp. 85–104; No. 3 (July 1960) pp. 207–227.

Pony Express

BLOSS, ROY S. *Pony Express — The Great Gamble.* Berkeley, Calif., Howell-North, 1959. 159 pp.

HOWARD, ROBERT W. [and others]. *Hoofbeats of Destiny; The Story of the Pony Express' Critical Role in Holding the West "For the Union" . . .* N.Y., New American Library, 1960. 191 pp.

SETTLE, RAYMOND W., AND MARY L. SETTLE. "Origin of the Pony Express; A Centennial Commemoration," *Bulletin of the Missouri Historical Society,* Vol. XVI, No. 3 (April 1960) pp. 199–212.

SMITH, WADDELL F., ed. *The Story of the Pony Express.* [2d Edition]. San Francisco, Hesperian House, 1960. 195 pp.

This brings together Glen D. Bradley's classic book with same title as above, and Raymond W. Settle's scholarly article from the *Utah Historical Quarterly,* Vol. XXVII, No. 2 (April 1959) pp. 102–126, entitled "The Pony Express, Heroic Effort — Tragic End."

WELSH, DONALD H. "The Pony Express in Retrospect," *Missouri Historical Review,* Vol. 54, No. 3 (April 1960) pp. 237–244.

See also entry for **William H. Russell.**

Port Huron Gas and Electric Companies. See entry for **Gas Industry.**

Pottery Manufacturers. See entry for **Pemco Corporation.**

Pratt & Whitney Company (machine tools)

"Masters of Precision," *Connecticut Industry*, Vol. 38, No. 6 (June 1960) pp. 6–11+.

Lewis Richard Price

JACKSON, W. T. "Lewis Richard Price, British Mining Entrepreneur and Traveler in California," *Pacific Historical Review*, Vol. XXIX, No. 4 (November 1960) pp. 331–348.

Profit Motive

BRUCHEY, STUART. "The Inadequacy of Profit Maximation as a Model of Business Behavior," *Business History Review*, Vol. XXXIV, No. 4 (Winter 1960) pp. 495–497.

Public Utilities. See entries for **Arkansas Power & Light Company; Gas Industry; Sidney Z. Mitchell; Northern Indiana Public Service Company.**

Publishing. See entries for **Charles H. Dow; Richard Hathaway Edmonds; James Watson Webb; This Week Magazine.**

Radio Stations. See entry for **WWJ, Detroit.**

Rafting

PETERSON, WILLIAM J. "Rafting on the Mississippi: Prologue to Prosperity," *Iowa Journal of History*, Vol. 58, No. 4 (October 1960) pp. 289–320.

Railroads

ABDILL, GEORGE B. *Pacific Slope Railroads From 1854 to 1900*. Seattle, Superior Publishing Company, 1959. 182 pp.

Pictorial history with very brief text.

BELCHER, C. F. "The Logging Railroads of the White Mountains. Part II," *Appalachia*, New Series, Vol. XXVI, No. 7 (June 15, 1960) pp. 37–49.

The first part appeared in the issue for December 15, 1959.

CARLSON, ROBERT E. "British Railroads and Engineers and the Beginnings of American Railroad Development," *Business History Review*, Vol. XXXIV, No. 2 (Summer 1960) pp. 137–149.

CROMMELIN, CLAUDE A. "A Dutch Investor in Minnesota, 1866; The Diary of Claude August Crommelin." Translated by A. Hermina Poatgieter, Edited by Muriel E. Hidy, *Minnesota History*, Vol. 37, No. 4 (December 1960) pp. 152–160.

CURRIE, A. W. "British Attitudes Toward Investment in North American Railroads," *Business History Review*, Vol. XXXIV, No. 2 (Summer 1960) pp. 194–215.

DECKER, LESLIE E. "The Railroads and the Land Office: Administrative Policy and the Land Patent Controversy, 1864–1896," *Mississippi Valley Historical Review*, Vol. XLVI, No. 4 (March 1960) pp. 679–699.

GOODRICH, CARTER. *Government Promotion of American Canals and Railroads*. N.Y., Columbia University Press, 1960. 382 pp.

Government participation in inland transportation in the nineteenth century.

HIDY, RALPH W., AND MURIEL E. HIDY. "Anglo-American Merchant Bankers and the Railroads of the Old Northwest, 1848–1860," *Business History Review*, Vol. XXXIV, No. 2 (Summer 1960) pp. 150–169.

PETERSEN, WILLIAM J. "Railroads Come to Iowa," *Palimpsest*, Vol. XLI, No. 4 (April 1960) pp. 177–260.

SCHUSLER, WILLIAM K. "The Railroads Come to Pittsburgh," *Western Pennsylvania Historical Magazine*, Vol. 43, No. 3 (September 1960) pp. 251–266.

SULZER, ELMER G. *Indiana's Abandoned Railroads. Part I: Abandoned Railroads of Bedford.* Indianapolis, Council for Local History, 1959. 48 pp.

See also entries for **Bellaire, Zanesville and Cincinnati Railroad; College Hill Railroad; Denver and Rio Grande Railroad; Denver and Rio Grande Western Railroad; Erastus Corning; Enid, Ochiltree and Western Railroad; Albert Fink; Henry M. Flagler; James H. Kyner; Lake George and Muskegon River Railroad; Louisville & Nashville Railroad; Mt. Tamalpais and Muir Woods Railroad; New York, Ontario & Western Railway; Richmond & Danville Railroad; Riverside and Great Northern Railway; Rockaway Valley Railroad; St. Johns Railroad; Sierra Railroad; Silverton Railroad; Seattle Coal & Transportation Company; Southern Pacific Railroad; Union Pacific Railroad.**

Railroads, Electric

CENTRAL ELECTRIC RAILFANS' ASSOCIATION. *Electric Railways of Michigan.* Chicago, 1959. 220 pp. (Bulletin, 103).

Brief text accompanies pictures, timetables, maps, passes, etc.

HILTON, GEORGE W., AND JOHN F. DUE. *The Electric Interurban Railways in America.* Stanford, Calif., Stanford University Press, 1960. 463 pp.

Part II (pp. 253–423) consists of brief histories of about 300 individual interurbans, arranged by state.

MARLETTE, JERRY. *Electric Railroads of Indiana.* Indianapolis, Council for Local History, 1959. 158 pp.

Brief text accompanies pictures, timetables, plans, etc.

Railway Progress Institute

MIDDLETON, P. HARVEY. *A Half Century of Teamwork.* [Chicago, Railway Progress Institute, 1958] 78 pp.

Thomas Rasberry (merchant)

HAWES, LILLA M., ed. *The Letter Book of Thomas Rasberry, 1758–1761.* Savannah, Georgia Historical Society, 1959. 154 pp. (Georgia Historical Society. Collections, Vol. 13).

These letters were published originally in *Georgia Historical Quarterly*, Vol. XL, No. 3 – Vol. XLII, No. 3 (September 1956–September 1958).

Real Estate and Land Development. See entry for **Gerald W. Blakeley, Jr.**

Retail Trade. See entries for **L. L. Bean; Department Stores; Henry Ford; Bertin C. Gamble; F. W. Woolworth Company.**

Richmond & Danville Railroad

CLARK, MALCOLM C. *The First Quarter-Century of the Richmond & Danville Railroad, 1847–1871.* [Washington, D.C., Priv. Print., 1959] 115 pp.

An M.A. Thesis, George Washington University.

Rich's, Inc. (department store)

NEELY, FRANK H. *Rich's; A Southern Institution Since 1867.* N.Y., Newcomen Society in North America, 1960. 24 pp.

Ringling Brothers

NORTH, HENRY RINGLING, AND ALDEN HATCH. *The Circus Kings; Our Ringling Family Story.* Garden City, N.Y., Doubleday, 1960. 383 pp.

William Rittenhouse

RUBICAM, MILTON. "William Rittenhouse, America's Pioneer Paper-Manufacturer and Mennonite Minister," Pennsylvania German Society

[Publications] Vol. 58 (1959) pp. 1–89.

Riverside and Great Northern Railway

[ROOKSBY, DENIS] *The Sandley Story.* San Francisco, Hesperian House, 1960. 72 pp.

Rockaway Valley Railroad

TABOR, THOMAS T. "The Rock-a-Bye Baby: Birth and Early Years," *Proceedings of the New Jersey Historical Society,* Vol. LXXVIII, No. 1 (January 1960) pp. 1–11; No. 2 (April 1960) pp. 95–117.

George Romney (automobile manufacturer)

MAHONEY, TOM. *The Story of George Romney, Builder, Salesman, Crusader.* N.Y., Harper, 1960. 275 pp.

Rubber Companies. See entry for **Goodyear Tire & Rubber Company.**

Ruggles and Dunbar

"Ruggles and Dunbar, Looking Glass Manufacturers," *Connecticut Historical Society Bulletin,* Vol. 25, No. 2 (April 1960) pp. 56–60.

Russell Manufacturing Company (men's clothing)

RUSSELL, THOMAS D. *Russell of Alabama.* N.Y., Newcomen Society in North America, 1960. 32 pp.

William H. Russell

SETTLE, RAYMOND W., AND MARY L. SETTLE. "The Early Careers of William Bradford Waddell and William Hepburn Russell: Frontier Capitalists," *Kansas Historical Quarterly,* Vol. XXVI, No. 4 (Winter 1960) pp. 355–382.

SETTLE, RAYMOND W., AND MARY L. SETTLE. "Napoleon of the West," *Annals of Wyoming,* Vol. 32, No. 1 (April 1960) pp. 5–47.

St. Johns Railroad

BATHE, GREVILLE. *The St. Johns Railroad, 1858 to 1895; A Commemorative History of a Pioneer Railroad.* St. Augustine, Fla., 1958. 70 pp.

Salem Oil & Grease Company

LYNCH, FRANCIS J. *50 Years in Blubber Hollow with Salem Oil & Grease Co.* Salem, Mass., The Company, 1960. 59 pp.

Elmer M. and Norman K. Sandley. See entry for **Riverside and Great Northern Railway.**

Seattle Coal & Transportation Company

BENTON, HOMER G. "Seattle Coal & Transportation Company," *Railway and Locomotive Historical Society Bulletin,* No. 103 (October 1960) pp. 47–56.

Nathan Sellers

MAXSON, JOHN W., JR. "Nathan Sellers, America's First Large-Scale Maker of Paper Moulds," *The Paper Maker* (Paper Makers Chemical Dept., Hercules Powder Company) Vol. 29, No. 1 (February 1960) pp. 1–15.

Service Industries. See entries for **Ernest Henderson; Ringling Brothers; Laurence and Preston R. Tisch; WWJ, Detroit.**

Asa Shepardson

SMITH, PETER F. "A Granville Cooper's Experience With Barter in the 1820's," *Ohio Historical Quarterly,* Vol. 69, No. 1 (January 1960) pp. 58–68.

Analysis of the contents of a ledger kept by Asa Shepardson, cooper and shinglemaker of Granville.

Shipbuilding. See entries for **Harry Defoe; Howard Shipyards Company.**

Sierra Railroad

DEANE, DOROTHY N. *Sierra Railway.* Berkeley, Calif., Howell-North, 1960. 181 pp.

Silverton Railroad

CRUM, JOSIE M. *Three Little Lines: Silverton Railroad; Silverton, Gladstone & Northerly; Silverton Northern.* Durango, Colorado, Durango Herald-News, 1960. 71 pp.

Based originally on articles that appeared in *Railway and Locomotive Historical Society Bulletin*, No. 74 (October 1948). A second edition was published by Bert Baker in 1956.

Samuel Slater (cotton textile manufacturer)

CAMERON, E. H. *Samuel Slater, Father of American Manufactures.* Freeport, Maine, Bond Wheelwright Company, 1960. 206 pp.

Thomas B. Slick (financier)

LUBAR, ROBERT. "The Adventures of Tom Slick," *Fortune*, Vol. LXII, No. 1 (July 1960) pp. 128–130+.

Southern Pacific Railroad

HUNGERFORD, JOHN B. *The Slim Princess; The Story of the Southern Pacific Narrow Gauge.* 3d Edition. Reseda, Calif. Hungerford Press., 1959. 32 pp.

Spartan Mills

THOMPSON, WILLIAM W. "A Managerial History of a Cotton Textile Firm: Spartan Mills, 1888–1958." Ph.D. Thesis, University of Alabama, 1960.

Sperry Rand Corporation

SPERRY RAND CORPORATION. *A History of Sperry Rand Corporation.* [N.Y., 1960?] 24 pp.

Claus Spreckels

ADLER, JACOB. "Water Rights and Cabinet Shuffles: How Claus Spreckels' Hawaiian Career Began," *Business History Review*, Vol. XXXIV, No. 1 (Spring 1960) pp. 50–63.

See also entry for **Oceanic Steamship Company.**

John D. Spreckels. See book by Dodge under **Transportation.**

Standard Rate and Data Service. See entry for **Advertising.**

Steam Power

BATHE, GREVILLE. *Three Essays; A Dissertation on the Genesis of Mechanical Transport in America Before 1800.* [Limited Edition] [Philadelphia, Allen, Lane & Scott] 1960. 57 pp.

Contents: John Fitch and the Genesis of the American Railway 1796–1798; Nathan Read and the Genesis of the American Steam Car 1790; A Posthumous Salute to John Fitch.

Steel Company of Canada

KILBOURN, WILLIAM. *The Elements Combined; A History of the Steel Company of Canada.* Toronto, Clarke, Irwin, 1960. 335 pp.

Steel Industry. See entries for **Andrew Carnegie; Steel Company of Canada; United States Steel Corporation.**

David B. Steinman

RATIGAN, WILLIAM. *Highways Over Broad Water: The Life and Times of David B. Steinman, Bridgebuilder.* Grand Rapids, Mich., W. B. Eerdmans Publishing Company, 1959. 359 pp.

Sublette Family

NUNIS, DOYCE B., JR. *Andrew Sublette, Rocky Mountain Prince, 1808–1853.* Los Angeles, Dawson's Book Store, 1960. 123 pp.

NUNIS, DOYCE B., JR. "The Sublettes of Kentucky and the Far West, 1830–1857," *Register of the Kentucky Historical Society*, Vol. 58, No. 2 (April 1960) pp. 129–144.

Louis A. Tarascon (French-American merchant and transportation promoter)

NUNIS, DOYCE B., JR. "Tarascon's Dream of an American Commercial Empire in the West," *Mid-America*, Vol. 42, No. 3 (July 1960) pp. 170–184.

Technology

MUSEUM OF HISTORY AND TECHNOLOGY. *Contributions from the Museum of History and Technology. Papers* 1– Washington, D.C., 1959–

To date these contributions, each covering a specific subject, have been issued as U. S. National Museum *Bulletins* 218, 225.

Technology and Culture; The International Quarterly of the Society for the History of Technology. Vol. 1, No. 1– Detroit, Wayne State University Press, 1959– $7.00 to nonmembers.

A new publication whose object is "to promote the scholarly study of the history of technology, to show the relations between technology and other elements of culture, and to make these elements of knowledge available and comprehensible to the educated citizen. . . ." – Cf. Vol. 1, No. 1, p. 9. Articles are by recognized authorities.

WOODBURY, ROBERT S. *History of the Milling Machine; A Study of Technical Development*. Cambridge, Technology Press, Massachusetts Institute of Technology, 1960. 107 pp. (Technology Monographs, Historical Series, No. 3).

The author's earlier studies published in this series are *History of Gear-Cutting Machine; A Historical Study in Geometrics and Machines* (1958. 135 pp.), and *History of the Grinding Machine; A Historical Study in Tools and Precision Production* (1959. 191 pp.).

See also entry for **General Dynamics Corporation.**

Textile Industry. See entries for **Clothing Industry; Cotton Industry.**

This Week Magazine

NICHOLS, WILLIAM I. *New Patterns in Publishing; The Story of This Week Magazine*. N.Y., Newcomen Society in North America, 1960. 24 pp.

Laurence and Preston R. Tisch (hotel executives)

SHELTON, WILLIAM R. "The Tisches Eye Their Next $65 Million," *Fortune*, Vol. XLI, No. 1 (January 1960) pp. 132–134+.

Tobacco Industry

HEIMANN, ROBERT K. *Tobacco and America*. N.Y., McGraw-Hill, 1960. 265 pp.

The story of the tobacco industry, with many illustrations.

See also entry for **P. Lorillard Company; John Norton & Son.**

Toys and Games. See entry for **Milton Bradley Company.**

Trade Catalogs

ROMAINE, LAURENCE B. *A Guide to American Trade Catalogs, 1744–1900*. N.Y., R. R. Bowker, 1960. 422 pp.

Under each industry, this list is arranged by company, with a symbol indicating which libraries have copies.

Transportation

DODGE, RICHARD V. *Rails of the Silver Gate; The Spreckels San Diego Empire*. San Marino, Calif., Pacific Railway Journal, 1960. 143 pp.

John D. Spreckels and "the role played by public transportation in the growth of San Diego." – Cf. p. vii.

See also entries for **Air Lines; Pony Express; Railroads; Railroads, Electric; Steam Power; Louis A. Tarascon; Willett Motor Coach Company.**

Transportation, Water. See entries for **Torger Birkeland; La Crosse and Minnesota Steam Packet Company;**

Lake Erie Excursion Company; Oceanic Steamship Company; Rafting.

Richard Trimble

GRESSLEY, GENE M., ed. "Harvard Man Out West: The Letters of Richard Trimble, 1882–1887," *Montana, the Magazine of Western History*, Vol. 10, No. 1 (January 1960) pp. 14–23.

Letters to his family by a young New Yorker who tried his hand at Wyoming cattle raising.

Preston T. Tucker

PEARSON, CHARLES T. *The Indomitable Tin Goose; The Story of Preston Tucker and His Car.* N.Y., Abelard-Schuman, 1960. 285 pp.

Union Pacific Railroad

FOGEL, ROBERT W. *The Union Pacific Railroad; A Case in Premature Enterprise.* Baltimore, Johns Hopkins Press, 1960. 129 pp. (Johns Hopkins University. Studies in Historical and Political Science, Series LXXVIII, No. 2).

United States Steel Corporation

GARRATY, JOHN A. "The United States Steel Corporation Versus Labor: The Early Years," *Labor History*, Vol. I, No. 1 (Winter 1960) pp. 3–38.

Variety Stores. See entry for **F. W. Woolworth Company.**

Samuel Vetch (Indian trader, soldier and civil governor of Nova Scotia)

WALLER, GEORGE M. *Samuel Vetch: Colonial Enterpriser.* Chapel Hill, University of North Carolina, for the Institute of Early American History and Culture, 1960. 311 pp.

William B. Waddell. See entry for **William H. Russell.**

James Watson Webb

CROUTHAMEL, JAMES L. "James Watson Webb: Mercantile Editor," *New York History*, Vol. XLI, No. 4 (October 1960) pp. 400–422.

Whittemore and Company

BORDIN, RUTH B. "A Michigan Lumbering Family," *Business History Review*, Vol. XXXIV, No. 1 (Spring 1960) pp. 64–76.

Willett Motor Coach Company

WILLETT, HOWARD L. *Willett and the March of Time: The History of a Company and a Family.* Chicago, Priv. Print., 1959. 39 pp.

F. W. Woolworth Company

KIRKWOOD, ROBERT C. *The Woolworth Story at Home and Abroad.* N.Y., Newcomen Society in North America, 1960. 24 pp.

WWJ, Detroit

YOUNG, CYNTHIA B. "WWJ — Pioneer in Broadcasting," *Michigan History*, Vol. XLIV, No. 4 (December 1960) pp. 411–433.

W. J. Young Lumber Company

SIEBER, GEORGE W. "Sawmilling on the Mississippi: The W. J. Young Lumber Company, 1858–1900." Ph.D. Thesis, State University of Iowa, 1960. 636 pp.

Zenith Radio Corporation

HAMMER, RICHARD. "Zenith Bucks the Trend," *Fortune*, Vol. LXII, No. 6 (December 1960) pp. 128–133+.

Like the financial mart from which it derives its name, OVER THE COUNTER is designed for the types of exchanges not handled elsewhere. This feature has its origin in a demand among readers of business history for a place to compare ideas, voice comments on published articles and reviews, and publish research essays. Contributions are invited. The Editor and Advisory Board reserve the right to decide whether, on the basis of general interest, pertinence, and merit, such contributions will be published. OVER THE COUNTER will appear as often as the volume of contributions may dictate.

UNIVERSITY OF WASHINGTON LIBRARY NOTES

MR. MARION A. MILCZEWSKI
Director of Libraries
at University of Washington

Among the notable recent additions to the University of Washington's Manuscripts Collection are the following group of manuscripts. ("Carton" = 10" × 12" × 16".)

Edward W. Allen Papers. Correspondence and reports relating to the Alaskan canned salmon industry, and hearings on aboriginal claims of the Alaskan Indians, conducted by the Department of Interior, 1944–1945.

Mr. Allen has served on the International Fisheries Commission since 1932 and was U.S. Commissioner on the International Salmon Fisheries Commission, 1937–1951, about 200 items.

Presented by Mr. Allen.

John E. Boyer Papers, ca. 1890–1920. Correspondence and other papers relating primarily to real estate and grain and produce trade for Walla Walla and

Seattle. Also letters from Captain Boyer in the Philippine Islands during the Spanish-American War. About 6000 items.

Denny and Frye Family Collection. Includes the overland diary of Arthur A. Denny (1851) with surveying notes (Knoxville, Illinois, 1850) and sales journal, 1853. Original plat of Seattle, May 23, 1853. Also deeds and other legal documents relating to land claims of the Arthur Denny and George F. Frye families. About 100 items.

Presented by Roberta Frye Watt and Elizabeth Frye Bogue.

William F. Devin Papers, 1939–1952. Mayor of Seattle, 1943–1952; justice of peace and municipal judge, Seattle, 1939–1942. Papers include correspondence 1939–1942, 1952; campaign scrapbooks (1941, 1942, 1944, 1946); other scrapbooks; papers relating to sale of Puget Sound Power and Light property to Seattle City Light (1951); date books, 1942–1951; miscellaneous papers relating to his judgeship, 1939–1942. 4 cartons.

Presented by Mr. Devin.

Drumheller Family Papers. The first installment has been received from Joseph Drumheller. Included in this installment is the diary (Ohio, 1859) of Leonard J. Powell, grandfather of Mr. Drumheller, and former president of the University of Washington. William L. Drumheller also has donated some letters and documents of Jesse Drumheller.

1 carton.

Winfield Scott Ebey Papers, 1850–1865. About 500 items relating to Winfield S. Ebey; the balance of the material is concerned with the Ebey Family (i.e., Isaac N. Ebey, Mary Ebey Bozarth, Rebecca Ebey, and later descendants of Mary Bozarth). That portion which directly involves Winfield Ebey is most heavily concentrated in the years 1857 to 1863. Because of the range of his activities and interests, Ebey's papers are illustrative of many aspects of Territorial life, from mining and farming to the legal practice and political activities of many of Washington's first settlers. Among his correspondents are William Winlock Miller, Francis Chenoweth, Elwood Evans, Selucius Garfielde, Granville O. Haller, J. J. H. Van Bokkelen, and many others. This acquisition complements the W. S. Ebey diaries which were already in the Manuscripts Collection.

Acquired from Robert L. Hawley, Oakland, California.

Richard D. Gholson Papers, 1859–1860. Includes 19 letters and copies of 3 documents relating to dispute over sovereignty of the San Juan Islands. (Gholson was governor of Washington Territory.)

Acquired from Mrs. William Rueter Kirkland.

Industrial Army of the U. S. (Coxey's Army). Diary of Bernard Baes recording the progress of his group in Coxey's Army (Industrial Army of the U. S.) which left California, March 16, 1894, and reached San Antonio, Texas, by March 29 (at which point the diary ends). Also a roster indicating occupation and place of birth. Baes was Secretary of his group.

Roy J. Kinnear Papers, 1920–1942. Mr. Kinnear was born in Seattle, 1881, died in Seattle, 1960. He was a state representative, 1935–1946, a founder of Associated Industries of Seattle and Citizen's Better Government League.

Papers include some correspondence (esp. 1938–1942), speeches, political campaign material (1942), some papers relating to Associated Industries and the Seattle General Strike of 1919. About 100 items.

Presented by Mrs. Roy J. Kinnear and son, George C. Kinnear.

Arthur B. Langlie Papers, 1936–1957. Mr. Langlie was governor of Washington, 1941–1945, 1948–1956; mayor of Seattle, 1938–1940; city councilman, 1936–1938. Papers include general correspondence (1955–1956); correspondence of 1956 senatorial campaign; correspondence and papers relating to Columbia Valley Authority (proposed); campaign notebooks (1936, 1938, 1940, 1944 and 1948); speeches (1938–1956); notebooks on various public subjects; photographs; and newspaper clippings (1945–1957). (Mr. Langlie's son, Arthur S. Langlie, has scrapbooks for the period before 1945.) 30 cartons (including 12 with clippings, 1946–1956).

Presented by Mr. Langlie, through the agency of his son, Arthur S. Langlie, Seattle.

Reverend Mark A. Matthews Papers, 1906–1939. Sermons, 1906–1939. (43 vols.) Reverend Matthews, a Seattle clergyman (First Presbyterian Church), played an important role in enacting much civic reform legislation in Seattle and Washington (State). A leader in temperance movement. Born Georgia, 1867; died, Seattle, 1940.

Deposited by Mrs. James Rice, Seattle; subject to final approval by Reverend Matthews' son, Mark A. Matthews, Los Angeles.

LaFayette Mosher Family Papers, 1853–1915. Includes a political analysis concerning Joseph Lane in Oregon (Mosher to Lane, May 3, 1853) and 2 letters, Lane to Mosher, 1858, 1860; 1 letter LaFayette Lane to Mosher, 1866. Remainder is family correspondence and some early documents. About 200 items.

LaFayette Mosher, born Kentucky, 1824, moved to Oregon, 1853; died in Portland, 1904. Son-in-law of Joseph Lane.

Terry Pettus Papers, 1935–1937. Correspondence and other papers of Mr. Pettus (as president of the American Newspaper Guild's Tacoma Chapter and as organizer of A.N.G. Chapters in the Northwest states and British Columbia), relating to organization of the American Newspaper Guild in the Pacific Northwest states, and to the conduct of the nationally important strike against the *Seattle Post-Intelligencer* (a Hearst paper) in 1936. 375 items.

Acquired from Mr. Pettus.

Edwin B. Stevens Papers. Correspondence and other papers relating to the University of Washington particularly to the administrations of presidents Graves, Kane, and Suzzallo, about each of whom Professor Stevens has written a biography (in manuscript form — with these papers). Professor Stevens was an administrator under President Kane and President Suzzallo. He was Professor of Education and is now Professor Emeritus. About 700 items.

Presented by Professor Stevens.

Stimson Mill Company Papers, 1881–1956. Lumber company which began operations in 1881 at Muskegon, Michigan, and migrated to Seattle, 1889. Includes early business record volumes, 1881–1906, and for the later period,

1946–1957. Correspondence for later period. Minute books, 1911–1917; 1931–1945. 26 cartons.

Presented by Mrs. Thomas B. Stimson, Seattle.

Alonzo Wardall diaries, 1863–1918. (33 volumes) and account books, 1868–1912 (8 volumes). Diaries cover Civil War in West; farming in Mitchell County, Iowa; work with National Aid Association (a fraternal insurance plan, which he founded; linked with Farmer's Alliance); work in Rochdale Cooperative movement in Kansas, California, Washington (from 1903–1918). Was secretary of the Northwest Cooperative Union. Born Iowa, 1845; died Seattle, 1918.

Deposited by Cedric Wardall (grandson), Seattle.

Additions have been made to manuscripts groups reported last year (see Pacific Northwest Quarterly, July, 1959). These groups are the:

Stephen F. Chadwick Papers (from Mr. Chadwick)
Thornton McElroy Family Papers (from Mrs. Charles E. Allison)
George F. Cotterill Papers (from Mrs. John W. Gearhart)

Special attention should also be drawn to an important cooperative project involving the Washington State Library, Colonel Virgil F. Field of the Washington Adjutant General's office, and the University of Washington Library. The project concerns the sorting of papers of the Military Department of Washington with the object of microfilming them. One portion of the correspondence (ca. 1853–1870) has been calendared by Colonel Field and is being put in chronological order by him and Mrs. Hazel Mills. Another (uncalendared) portion has been transferred to the University of Washington Library for sorting by Miss Judith Johnson. The latter group consists of 6 cartons of financial accounts and upwards of 1000 letters concentrated in the period, 1855–1857.

BOOK REVIEWS

GOVERNMENT PROMOTION OF AMERICAN CANALS AND RAILROADS, 1800–1890. ***By Carter Goodrich. New York, Columbia University Press, 1960. Pp. x + 382. $7.50.***

Reviewed by Hugh G. J. Aitken
University of California at Riverside

This substantial volume represents the long-awaited product of Professor Goodrich's program of research on the role of government in the construction and financing of the American transport system in the nineteenth century. To say that it fulfills expectations would be only meager praise. The book will without doubt remain the authoritative work on the subject for many years.

A critic might cavil at the word "promotion" used in the title. The impression one gathers is that the promotional activities, in the usual sense of the word, were typically private, not governmental. The role of government, at the federal, state, and municipal level, was typically that of facilitating the financing of projects whose origin and conception were private. There are exceptions, to be sure: the "era of national projects," as Goodrich terms the period 1801–1830, was characterized by large-scale national planning, as for instance in Gallatin's report on roads and canals; New York's Erie Canal was a state work in every sense of the word; in the reconstruction South cases of governmental entrepreneurship — sometimes for private profit — can easily be found; and in the last quarter of the century the Cincinnati Southern Railway was a clear example of municipal initiative. Yet the general pattern is unambiguous. Government assistance was resorted to primarily as a means of raising funds for projects whose capital requirements were beyond the capacity of private enterprise, either because the uncertainties were too great or because — a related consideration — the income created by the project could not be recaptured as revenue by a private corporation.

Ideological obstacles to government assistance seem to have been unimportant. Resistance did develop to large-scale planning for internal improvements on a national basis, and the use of mixed corporations and subsidies in cases where outright government ownership was the obvious alternative may reflect an ideological commitment to the idea of private responsibility and limited government. But these attitudes and practices can be explained on other, more materialistic, grounds. In general, government was regarded as an instrumentality, a device to be used when

convenient and in particular when national, regional, or local ambitions coincided with private profit, or could be made to seem to do so.

This book does more than suggest the need for a reinterpretation of the economic role of government in nineteenth-century America; it also indicates the direction in which reinterpretation must proceed. In this respect it complements and reinforces the work of Hartz, the Handlins, Primm, Heath, and others, whose mutually supporting monographs on the role of government in nineteenth-century American economic development have been one of the more impressive achievements of American economic history in recent years. Professor Goodrich's work may be vulnerable to criticism in detail, and one wonders whether it was really necessary to eliminate from the story so much of its inherent human drama and excitement; but one hopes it will give a final quietus to the myth that the dynamism of nineteenth-century economic development in the United States stemmed wholly from autonomous private entrepreneurship.

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HISTORY OF PUBLIC ACCOUNTING IN THE UNITED STATES. ***By James Don Edwards; Foreword by John L. Carey. MSU Business Studies. East Lansing, Bureau of Business and Economic Research, Graduate School of Business Administration, Michigan State University, 1960. Pp. xiv + 368. $6.50.***

Reviewed by Roy J. Sampson
University of Oregon

Accountants are not widely known for historical proclivities. An accounting history by an accountant, therefore, is noteworthy. This is especially true when the study concerns the fertile but almost completely unplowed field of American accounting history. Several well-known scholarly works have dealt with European accounting developments during the ancient, medieval, and early modern periods, but American developments, until now, have been treated only incidentally and unsatisfactorily.

Professor Edwards begins his story in early eighteenth-century Britain with a brief chapter on "The Antecedents of American Public Accounting." After a break to define public accounting, in which numerous state laws, associations, and individuals are quoted, he resumes with a chapter covering U. S. developments from 1748 to 1895; that is, from Benjamin Franklin's engagement of James Parker up to the verge of New York's first C.P.A. law. The following period, to the passage of the federal income tax law in 1913, is described as an era of great strides in education, legal and business recognition, the formation of professional associations, and the true professionalization of accountancy.

The years from 1913 to 1928 were marked by the effects of the income tax, war contracts, the extension of C.P.A. legislation into all states, more uniformity of professional examination requirements, the expansion of C.P.A. firms, and more definite legal responsibilities of accountants. In addition to these topics, the author discusses various professional organizations and their differences.

Numerous developments are emphasized during the period 1928 to 1949. These include the impact of stock exchange requirements and

securities regulations, the merger of the American Society into the American Institute of Accountants, the extension of minimum audit procedures resulting from the shock of the McKesson & Robbins episode, moves toward higher educational requirements as a prerequisite for taking C.P.A. exams, and state laws restricting the practice of public accountancy to C.P.A.s. The war and postwar periods brought problems of excess profits, cost-plus contracts, and contract terminations, as well as a conflict between accountants and attorneys.

The chapter dealing with developments during the 1950's contains 100 of the book's 307 pages of text. This period saw a number of tilts with attorneys, regulatory commissions, and public utilities and other industries. Ethical and professional standards, higher educational requirements, and uniformity of admission procedures continued to evolve. Management advisory services, which had originated on a small scale as far back as World War I, were greatly expanded, and the American Institute of Accountants became the American Institute of Certified Public Accountants.

Despite its evident research effort and scholarship, and its pioneering nature, this reviewer is disappointed with the presentation. An author has the right to begin his narrative where he chooses, but only a little more space would have been required to relate eighteenth-century British practices to their earlier continental predecessors. Also, the reviewer feels that British influences on American developments during the nineteenth century are overemphasized. Not enough recognition is given to the interpretation that American practices in many respects were relatively independent, or paralleled rather than merely copied British procedures, especially during the latter part of the century.

Little attempt has been made to evaluate the recorded incidents, or to relate them to broader economic and business developments. The book is more a history of public accountants than of public accounting. In the author's own words (p. 4), ". . . one can scarcely hope to see the forest, but I have tried to record faithfully the nature and number of the individual trees." Such tree-counting, while useful for reference purposes, and perhaps interesting to some accountants, is not satisfactory from the viewpoints of economic or business historians or general readers. The reviewer believes that it is both desirable and possible to see at least the outlines of a forest if the trees are approached from a different perspective.

Organizationally, the text can at best be described as chaotic. Although intended as a chronological presentation, the author frequently jumps from date to date and from topic to topic with a facility which leaves one gasping "Which way did he go?" As a typical example, on page 18 the narrative proceeds from 1854 to 1787 to 1790 to 1799 to 1811 to 1825 to 1773 to 1805 to 1783 to 1676. Further, much material included in the text would have been more appropriate in footnotes or appendices. More than one fourth of the words in the chapter dealing with the antecedents of American accounting, for example, are direct quotes, and the following chapter, "Definitions of American Public Accounting," completely breaks the tenuous thread of narrative which has been established. The chapter dealing with the 1950's could have been shortened by half, and made

considerably more readable, by placing many of the extensive quotes and lists of persons, places, bulletins, etc., elsewhere. Similar comments could be made concerning most of the other chapters. The nine-page summary chapter, however, is an exception. It is well organized, well written, and well worth the time spent by the reader in wading through the preceding morasses.

The author has compiled an excellent bibliography, and in appendices has reproduced the first C.P.A. exam given in the U.S. (New York, 1896) and a table showing the number of original C.P.A. certificates issued by examination, waiver, and reciprocity by each state during each year from 1896 through 1958. These materials, together with numerous other similar data presented in the text, will make this book invaluable as a secondary reference source. Unfortunately, the index is somewhat brief.

The foregoing is not intended as destructive criticism. The author has performed an excellent and much-needed piece of path-breaking research. It is not expected that his interpretations, biases, and methods of presentation conform to those of the reviewer. Such faults as the book has, from the viewpoint of the reviewer, are faults of editorship (or the lack thereof) rather than faults of purpose, concept, scholarship, or authorship.

• • •

CONSERVATIVE CRISIS AND THE RULE OF LAW: ATTITUDES OF BAR AND BENCH, 1887–1895. ***By Arnold M. Paul. Published for the American Historical Association, Ithaca, Cornell University Press, 1960. Pp. xii + 257. $4.75.***

Reviewed by Richard S. Kirkendall
University of Missouri

There has been much talk in recent years about a need for historical studies of American conservatism. Only a small amount of action has resulted, but Arnold Paul's Beveridge Award volume provides an excellent illustration of what can be done with this theme. His book will not satisfy those who want their histories of conservatism written from a conservative point of view but will delight those who insist that intellectual developments must be viewed in a broad context and that historical research must focus upon problems. Business historians will be interested in what is revealed about the history of government protection of business enterprise.

The author's problem is the late nineteenth-century revolution in the scope of judicial supremacy. The problem is complicated by one of the major contributions of Professor Paul's research: the revelation of the intellectual complexity within the legal profession of the period. He finds the solution to his problem in the sense of crisis that developed in the minds of a number of leaders of bench and bar. Social tensions in the years from the Haymarket Riot to the Bryan Campaign generated fears about democracy and pushed the courts to new positions of power in order to restrain labor unions and legislatures and protect property. "Laissez-faire conservatives" promoted the revolution. Some "traditional legal conservatives" deplored the departures from judicial traditions, and the "legal progressives" demanded that legislatures be allowed to attack

social and economic problems. The historian's research, in other words, revealed that his problem was to explain why one group in the profession triumphed over its competitors, and his research called attention to the way broad social forces affected the outcome.

The author's frame of reference did not encourage him to attempt to explain why different leaders in the profession embraced different philosophies. His discussion merely suggests that he regards a simple economic interpretation as inadequate. He stresses, for example, Richard Olney's "conservative repugnance to the direct-action techniques of lower class radicalism" as well as "his prorailroad associations" in order to explain his actions in the Pullman Strike.

The author, in impressive fashion, spells out the relationships between his own work and that of his predecessors. He regards the emphases that Benjamin Twiss and Clyde Jacobs placed upon the influence of corporation lawyers and legal writers as less than adequate explanations of the revolution. He criticizes Louis Hartz and Clinton Rossiter for failing to note the emergence in the conservative mind of intensified fears about democracy.

Some aspects of the book could profit from more thorough investigation. Not enough is said of Mr. Justice Holmes. Paul lists Holmes as a legal progressive but neither affirms nor denies the impression that he had important disagreements as well as agreements with other men of that persuasion. Evidence in the book suggests that progressives such as Seymour Thompson did not share Holmes' scepticism. Perhaps Thompson was closer to Brandeis. Perhaps the book should have been dedicated to him rather than to Holmes, even though a Holmes statement did provide the author with a clue to the solution of his problem.

The author utilized the proceedings of bar associations and the legal periodicals in an unusually large and systematic way, but one wishes at times that he had not limited his research to published sources. The reviewer would like to know what private correspondence would reveal about the impact of the crisis upon the "traditionalists." Some of them changed their attitudes toward the role of the courts and accepted the position of the laissez-faire conservatives. That change provided the author with some of the most important evidence for his thesis about the importance of the crisis.

Although the book fails to answer all of the questions that it raises, it adds greatly to our understanding of a major development in the late nineteenth century and to our awareness of the intellectual complexity of the period.

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SAMUEL SLATER: FATHER OF AMERICAN MANUFACTURES. ***By E. H. Cameron. American Saga Series, Freeport, Me., The Bond Wheelwright Company, 1960. Pp. xvi + 206. $4.00.***

Reviewed by Ernest M. Lander, Jr.
Clemson College

In this little volume Mr. Cameron retells the familiar success story of English-born Samuel Slater (1768–1835), frequently called "Father of American Manufactures." Young Slater, a textile mill apprentice, care-

fully learned the Arkwright system of making yarn, left England in disguise, and arrived in New York in 1789. After a brief sojourn in the port city, he removed to Rhode Island, where he formed a partnership with merchants William Almy and Moses Brown to construct an Arkwright mill. Relying entirely on memory, Slater fashioned the machinery and began operations, December 20, 1790, in a clothier's shop.

The profitableness of the firm soon permitted Slater to expand operations. By 1827 he had formed 13 separate partnerships to engage in a variety of textile manufacturing activities from Connecticut to New Hampshire. Slater also speculated in land and invested in turnpike companies. He apparently reached his zenith in 1829, at which time he was called upon to furnish some $300,000 to the creditors of his Wilkinson in-laws. Slater was forced to retrench and liquidate some of his holdings. Nevertheless, he weathered the storm and remained quite wealthy. In his last six years his sons increasingly took over the management of his business.

In his textile operations Samuel Slater holds a number of "firsts," but at times he was cautious and slow to capitalize on innovations of others. Mr. Cameron eulogistically pictures him as a hard-working, square-dealing, and efficient businessman, and paternalistic toward his workers in the fairest manner. Regrettably, the author includes little of Slater's personal life. There is scant information about his early years in England. We are told little more of his two marriages than the names of his wives. Even the birthdates of his first two children are missing (five of his nine children failed to reach adulthood). On the other hand, the author frequently digresses into topics only remotely connected with Slater's career.

Slater undoubtedly played a significant role in American industrial history, but this brief treatise hardly does his fame justice. It may be that there are insufficient Slater materials available to permit a first-rate biography. The author does not indicate the extent of his research. He lists no manuscript collections in his bibliography and omits the use of footnotes and an index. However, he does acknowledge his indebtedness to other sources, especially George S. White's *Memoir of Samuel Slater* (1836) and an unpublished biography of Slater by Dr. Frederick Lewton. The volume's chief merits are its readable style, almost complete freedom of typographical errors, and the absence of tedious details of the textile management and technology.

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MILL ON THE DAN: A HISTORY OF DAN RIVER MILLS, 1882–1950. ***By Robert Sidney Smith. Durham, North Carolina, Duke University Press, 1960. Pp. 570. $12.50.***

Reviewed by Louis Galambos
Rice Institute

In 1882 Thomas B. Fitzgerald, a Danville, Virginia, contractor and brickmaker, brought together a small group of businessmen who were able to invest a total of $54,000 in a company organized "for the purpose of manufacturing cotton and woolen fabrics, rope, etc." Fitzgerald added $21,000 of his own money, and in 1883 the new company began to manufacture cotton yarn and cloth. Ventures such as this were rather

common throughout the Southern Piedmont in the 1880's. Many of these early corporations have long since disappeared, however, while the company Fitzgerald organized is today a successful firm with a stockholder's equity of $58 million. Between 1883 and 1950, Riverside and Dan River Mills produced over 63 billion yards of cloth and paid the stockholders about $50 million in dividends. The history of this company is a story of success achieved in an industry which has frequently encountered periods of fierce competition and severe financial losses.

In a handsomely bound volume, Professor Robert Sidney Smith of Duke University has presented a well-written business history of this successful firm. Drawing upon the company's records, Professor Smith has written a detailed study of almost every phase of Dan River's operations between 1882 and 1950. The author has examined the company's financial policies, marketing problems, production record, and labor relations; in each case, Professor Smith has written a concise and informative account of the firm's behavior.

Since this volume is bound in "Malabar," a cotton fabric woven by Dan River Mills, there will probably be some suspicion that this is a "company history," a publicity job. This, happily, is not the case. Even the most skeptical economist will undoubtedly find it difficult to criticize the scrupulously honest manner in which Smith has described and evaluated aspects of the firm's operations which would never have found their way into a book designed to boost Dan River's prestige or sales. In his discussion of price-fixing or Dan River's fight with the labor unions, for instance, the author avoids the eulogistic, "corporation-with-a-soul" approach which has so often made history based on company records suspect.

Students of business and labor history should find Smith's careful study of Dan River's experiment with Industrial Democracy especially rewarding. As originally conceived, the plan created a House of Representatives and Senate which (theoretically) enabled the workers to participate in the management of the company. Industrial Democracy failed, however, to provide the mill hands with the type of representation they needed, and in the early 1930's, idealistic schemes gave way to a hardheaded fight over union organization. The author's conclusions about the company's labor policies are similar to those advanced in Irving Bernstein's *The Lean Years*, but Smith's analysis seems more balanced and objective.

Although this history of Dan River is objective and well written, Professor Smith has failed in one important respect: he has not made clear to the reader what the history of Dan River means. The author does not place the history of this company in the general context of national industrial developments, nor does he relate the Dan River story to the South's modern-day industrial revolution. When the historian examines highly concentrated industries, the history of one giant corporation such as the Standard Oil Company hardly needs to be justified; but in an atomistic cotton textile industry it is not so obvious that the history of one firm is significant. This is especially true if the author fails, as Smith has, to develop explicitly a meaningful context for his case study.

Due to this lack of concern for the general context of the study, much of the detail will prove meaningless to the reader who is not already familiar with the industry's history. Specialists will be grateful for the

information the author carefully includes; most readers, however, will doubtless wonder why they should know, for example, that during the First World War, loom replacements at the mills included "376 Stafford wide looms (1915), 87 Crompton & Knowles gingham looms, and, curiously, one 82-inch blanket loom." This sort of minutiae can only be meaningful when it is used to fill in a broad conceptual framework. The failure to provide the reader with this framework or to come to general conclusions considerably diminishes the value of this otherwise competent study.

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MARSHALL'S OF LEEDS, FLAX-SPINNERS 1788–1886. ***By W. G. Rimmer. New York, Cambridge University Press, 1960. Pp. 342. $7.50.***

Reviewed by Jean Lindsay
Aberdeen, Scotland

The value of this account of the rise and fall of what was once the largest flax-spinning concern in Europe is twofold. In the first place, it gives a detailed account of the firm's origins and development and of the reasons for its decline: since economic historians have tended to concentrate on businesses still in existence, the latter part of the work is of special interest. In the second place, it describes the changing status and character of the owning family, and presents a vivid picture of their relations not only with their employees and customers, but also with their neighbors and associates in Leeds, London, and the Lake District. The chief sources are business and private documents — ledgers, stock books, notebooks and letters — preserved by the manufacturers' descendants and now deposited in Leeds University Library and the library of a house on Derwent Island. The nature of these records enables Mr. Rimmer to give a remarkable impression of the interaction of personalities within the family, but limits his account of such matters as wages and business dealings.

John Marshall, the founder of the firm, was the son of a prosperous nonconformist linen draper; he began to spin flax five miles north of Leeds in 1788 with machinery modeled on that used in the cotton industry. Technical details had to be solved before the machines could compete effectively with the hand spinners, and in the early stages Marshall's tenacity and confidence were severely tested. Large-scale manufacture was begun a few years later at Water Lane, half a mile from Leeds, where water power, labor, coal, and transport facilities were readily available. Water power, however, was soon replaced by steam. In 1793, Marshall dispensed with his original partners. "As they would neither of them be of any further use, I released them from the concern and took the whole upon myself." A partnership with the Benyon brothers, Unitarian woolen merchants from Shrewsbury, lasted until 1804, when Marshall bought them out both in Shrewsbury and in Leeds; thereafter his partners were men of inferior social status whom he treated as employees. He made a fortune in the Napoleonic Wars, chiefly by speculating in flax. By 1815, when the firm's success reached its peak, he had nearly £400,000. Thereafter he aimed at becoming a "Gentleman Flax-Spinner": he bought a house in London and estates in the Lake District, and invested in rail-

way shares and government bonds. He became an M. P. in 1826, but his parliamentary career was undistinguished, and in 1837 he retired from politics.

Four of his sons, John II, James, Henry, and Arthur, entered the family business. Brought up in an atmosphere of luxury, the friends of scholars, poets and reformers, they had not inherited their father's urge to make money. When they entered the firm after the war, it was faced with falling prices for yarn and competition from both flax spinners and cotton manufacturers. It was only the introduction of wet spinning and the finer yarn produced by this means that restored its position. Prosperity lasted until 1837, when competition again became severe. James Marshall decided to develop the production of thread and cloth, and in 1839 a large one-story mill, known as Temple Mill, was erected. The new building became one of the wonders of the age, but it did little to revive the firm's fortunes. In the 1840's French tariffs and Irish competition brought a new struggle for markets. Thread making remained profitable, however, and the Marshalls found new markets in the United States and in central Europe.

In 1845, John Marshall died leaving his sons in control. As an employer he had been conservative: he visited Owen's cotton mills at New Lanark, but, although he organized day and evening schools for his workers in 1822 and encouraged the formation of a friendly society in the 1790's, he rarely interfered in their lives outside the mill. After his death the business declined fairly steadily except for a brief revival during the American Civil War. Labor difficulties became acute in 1871: the workers were reluctantly granted a 10 per cent raise, but in the following year they demanded a 54-hour week with no reduction in pay. Though the strike was broken, the Marshalls were thereafter regarded as "the scrubbiest employers within twenty miles of Leeds." The firm's decline is attributed by Mr. Rimmer not merely to high wages, tariffs, and the difficulty of obtaining cheap imported flax, but also to inefficient management. The third generation cared even less for the mills than the second. John III and Stephen tried to reorganize them by reducing the size of the plant and introducing new machinery, but too much money had already been lost, and in 1886 production was stopped. Such was the fate of what a political rhymer had once nicknamed "The House that Jack Built."

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MONOPOLY ON WHEELS: HENRY FORD AND THE SELDEN AUTOMOBILE PATENT. ***By William Greenleaf. Detroit, Wayne State University Press, 1961. Pp. vii + 302. $5.95.***

Reviewed by Barbara Shapiro
Harvard Graduate School of Business Administration

In this straightforward narrative, much of which appeared in Allan Nevins' *Ford: The Times, the Man, the Company*, William Greenleaf has described one of the more exciting chapters in the history of the automobile industry, that of the famous Selden patent suit. George Selden might have remained one of the many nameless men who tinkered with the internal combustion engine if it had not been for his knowledge of patent law. His contribution to the development of the automobile was a

small one, but his patent and the litigation over it had important effects on the subsequent history of the industry and the Ford Motor Company.

The patent Selden filed in 1897 was not for an automobile using a specific engine, although the drawings clearly represented the modified Brayton engine which he had developed, but for the concept of the automobile itself. The patent was to cover all vehicles powered by gasoline engines and included all the fundamental elements of the automobile. When Selden initially filed his patent application his conception was a significant advance in the automotive art, but by the time the patent was issued in 1895, the design was already outmoded. Nevertheless, the Electric Vehicle Company which purchased the Selden patent rights demanded royalties, and infringement suits were initiated although no attempts were made to restrict licenses. However, a group of manufacturers forced EVC to accept its terms in return for recognition of the patent. It was now the Association of Licensed Automobile Manufacturers (A.L.A.M.) who controlled the patent, determined who would be issued licenses, and selected targets for infringement suits. Most companies considered the patent invalid but felt it "cheaper to join than fight." The A.L.A.M. threatened the others with infringement suits. The initial battle between the A.L.A.M. and a group of recalcitrant manufacturers led by Henry Ford, took the form of an advertising war. The second took place in the courts.

Infringement suits against Ford, his New York agent, and several importers began in 1903. Ford's lawyers, working closely with Panhard, an importer, hoped to show that the "automobile" was too general and widely known a concept to be subject even to a combination patent and, if the patent were declared valid, that no infringement occurred because Selden's only novel contribution, his engine, was not being used by the defendants.

As the suits proceeded slowly through the legal channels, the battle continued before the bar of public opinion. Ford capitalized on the publicity and created for himself the image of a crusader against monopoly. Although Greenleaf does not present much new information about Ford, he does illustrate Ford's ability to turn almost any set of circumstances into an advertisement for himself and his product.

The first round went to the A.L.A.M. In 1909 a federal district court upheld the patent and affirmed its comprehensive character. The disintegration of the nonlicensed group followed, most of its members applying for and receiving licenses on fairly generous terms. Ford, however, refused to join, apparently because the A.L.A.M. would not pay his court costs. He and Panhard then appealed. The final decision in 1911 generally accepted the arguments of Ford's attorneys and reversed that of the lower court. The decision resulted in the dissolution of the A.L.A.M.

That, in brief, is the story, and Mr. Greenleaf tells it well. Unfortunately he does not make entirely clear what the story means either for the history of the automobile industry or for the development of judicial regulation of industry. For instance, Greenleaf writes of "monopoly on wheels" but, as he himself shows, the A.L.A.M. was not a monopoly. Competition among its numerous members was keen. Although the association at-

tempted to exclude a few "fly-by-night" firms, little effort was made to limit production or entry into the field. The suit did not "cramp or paralyze the development of the Ford Motor Company or the industry at large" (p. 238), and even if the decision had gone to the A.L.A.M., the patent was close to expiration. If the A.L.A.M. did not and could not create monopoly control, perhaps the whole monopoly issue is irrelevant and was created only by the publicity surrounding the case.

Indeed, the author suggests that the principle result of the case was a reform of procedures for taking testimony in patent disputes rather than a change in the competitive situation within the industry. He makes the required bow to judicial realism, presents brief biographies of the judges and notes that considerations of public policy played a part in the final decision. But he does not place his admirable detailed account of the litigation in the context of contemporary patent law. Therefore, the reader is unable to determine whether the Seldon case represents a bold new stroke by judges conscious of the threat of monopoly lurking in traditional patent law usage or a relatively routine application of the existing case and statute law.

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THE UNION PACIFIC RAILROAD: A CASEBOOK OF PREMATURE ENTERPRISE. ***By Robert W. Fogel. Baltimore, The Johns Hopkins Press, 1960. (The Johns Hopkins University Studies in Historical and Political Science, Series LXXVIII, Number 2.) Pp. 128. $3.50.***

CLIMAX: AN UNUSUAL STEAM LOCOMOTIVE. ***By Thomas T. Taber, III, and Walter Casler. New Jersey, Railroadians of America, Inc., 1960. Pp. 97. $6.00.***

Reviewed by Robert C. Toole
University of Kentucky, Fort Knox Center

It is difficult to imagine two books on railroad history with as little in common as *The Union Pacific Railroad* and *Climax*. Mr. Fogel has written an analytical reinterpretation of the legislative and financial history of the Union Pacific and its construction company, the Credit Mobilier, from 1845 to 1879. Based largely upon the *Congressional Globe* and the report of the Wilson committee of the House of Representatives after its investigation of the two firms in 1873, the book includes extensive footnotes, useful tables, a well-selected bibliography, and an adequate index.

The author noted that his study differs from previous Union Pacific histories in four main respects. First, he suggested that the progress of legislation was marked not by a headlong flight from proposals for a government enterprise but by the difficulty Congress exhibited in breaking away from such schemes. Secondly, Fogel introduced new material "controverting" the traditional explanation of the railroad's ruin. Thirdly, he tested the economic wisdom of the government's decision to intervene in building the line. Finally, he used formal economic theory, including interest theory, and theory of a "fair game," the theory of rent, and the concept of present value, in determining and analyzing facts.

The Union Pacific, Fogel concluded, was a "premature" enterprise from the viewpoint of the unwillingness of unaided private enterprise to undertake the project. The Act of 1862 was therefore a plan for a mixed enterprise, although the private elements in the law predominated. The Act of 1864 represented a further accommodation of private capital, but did not eliminate the quality of mixed enterprise.

The unique feature of the Credit Mobilier was not that it eliminated or even reduced the risk, but that it provided the promoters with the possibility of obtaining a profit large enough to induce them to undertake the venture despite the risk. With respect to the railroad's post-construction financial instability, "the great deficiency was not in the character of the promoters but in the character of the enactments." The Union Pacific's enervation was built into the Acts of 1862 and 1864 by a Congress that failed to understand the implications of the risk that the investing public attached to the project.

The road's net earnings during the 1870's show that it was a highly profitable venture that should have been undertaken by unaided private enterprise. The social returns leave little doubt that the government was economically justified in intervening to build a road that would not otherwise have been built. Fogel's final conclusion was that, from the government's viewpoint, public construction might have been the most desirable method.

This provocative reinterpretation deserves to be studied by historians, economists, and political scientists. Some probably will question whether the author's decision largely to ignore the promoters' dubious activities in currying congressional favor resulted in a balanced account. This reviewer found the conclusions generally convincing.

Mr. Taber and Mr. Casler have written a history of a geared steam locomotive produced by the Climax Manufacturing Company of Corry, Pennsylvania, near Erie, from 1888 to 1928, primarily for logging railroads. Lack of company records caused the authors to search widely for information from former employees and from companies and individuals who used the engines. The book includes many interesting illustrations, two lengthy tables of Climax locomotive statistics, and a page of acknowledgments, but no footnotes or index.

Lumbermen were using locomotives on logging roads by 1870, the authors noted. Because of the rigidity of conventional side-rod engines, track had to be fairly well graded and laid. Ephraim Shay is generally credited with the invention of the first geared locomotive, which achieved unheard-of freedom of movement on poor track. A few years later Climax developed its engine.

The geared locomotive's success altered the lumber industry, Taber and Casler concluded. Small sawmill owners expanded, now that they could bring in logs from miles around, and opened up new areas such as the deep South and the Appalachians. The Climax engines not only became common on logging roads, but were used by short-line common carriers, coal mines, stone quarries, industrial switchers, contractors, and sugar cane plantations. Climax sold its locomotives throughout the nation and exported them to Latin America, the western Pacific, and elsewhere. The company built nearly 1,100 geared locomotives in 41 years.

After 1920 the "jitney" operator appeared in the East with a small, portable lumber mill which he moved from one stand of timber to another. In the West, lumbermen introduced large diesel trucks to bring in the logs. Today only a few geared locomotives remain, and they may soon be gone.

This volume fills some blank spaces in the history of locomotive manufacturing and of lumbering. Scholars may wish that the authors had made a more systematic analysis of the painstakingly assembled locomotive statistics. The work nevertheless furnishes an example of a relatively small firm finding a niche in a major manufacturing business, and of the technological development over many years of "an unusual steam locomotive."

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LOCKWOOD GREENE, THE HISTORY OF AN ENGINEERING BUSINESS, 1832–1958. ***By Samuel B. Lincoln. Brattleboro, Vermont, The Stephen Greene Press, 1960. Pp. xii + 858.***

Reviewed by Jack Blicksilver
Georgia State College

At a time when all too many business histories written by company employees are superficial panegyrics, this study offers a refreshing change. The author joined the firm in 1906 on a temporary engineering assignment which extended into a more than half century association culminating in service as president from 1949 to 1954 and as chairman of the board since 1954. As "the oldest living employee in years of service," he has undertaken his project "as a tribute to the earlier generations of the company, and also as a service and tribute to the present members of the organization." But although this declaration of purpose casts some initial doubt as to Lincoln's objectivity, this is soon dispelled. What he gives us is a thoughtful, analytical, broad-gauged treatment of the evolution of the company within the framework of developments in engineering, trends in industry, and cyclical changes.

Lockwood Greene had its beginning as a firm providing engineering service to industry in the ante-bellum consulting activities of David Whitman, the peripatetic "mill doctor" of New England. During the quarter century following 1832 Whitman visited and supplied advice to scores of mills as well as designing many new ones. He numbered among his clients such distinguished names as Naumkeag, Pepperell, and Bates, and at the time of his death in 1858 he was in charge of extensive mill construction in Lewiston, Maine, for a group of textile magnates led by Benjamin Bates.

Whitman was replaced in Lewiston by Amos D. Lockwood who, although little experienced in mill design had, at the age of forty-seven, already enjoyed a successful career as mill promoter and manager. After a dozen fruitful years in Maine during which he designed the Androscoggin Mills, served as technical advisor to Pepperell and assumed the initiative in organizing the Saco Water Power Machine Shop, Lockwood decided in 1871 to open a consulting office in Boston. During the next decade, a period when engineering was first emerging as a recognized profession, Lockwood designed a considerable number of large and im-

portant mills in New England and played a significant role in the rapid expansion of the textile industry in the South. As he approached his seventieth birthday, Lockwood sought a younger man who would be capable of assuming a major share of the increasing burden and found him in Stephen Greene, a twenty-seven-year-old civil engineer who had graduated from Brown with Phi Beta Kappa honors in three years. On March 1, 1882, a partnership was formed, with John W. Danielson, Lockwood's son-in-law, as the third partner. When Lockwood died in 1884 and Danielson, who was interested primarily in mill management, sold out in 1889, Greene became sole owner.

During Greene's 17 years at the helm, Lockwood, Greene & Co. became the leading mill engineering firm in the nation. A core of extremely able engineers, led by Frank W. Reynolds, Frank E. Shedd, and Albert L. Scott, was formed, and Greene infused the entire organization with his imagination, vigor, and integrity. This period saw the company gain unrivaled leadership in the rapidly burgeoning southern sector of the textile industry, establish its first branch office (Greenville, South Carolina, in 1898), pioneer in the application of electric power to drive industrial machinery, and begin the process of branching out into a variety of engineering activities. But with the exception of a brief and unsuccessful foray into mill management during the mid-1880's, the firm while under Stephen Greene's leadership remained a service organization, providing all the necessary architectural and engineering work required to design, build, and equip a plant, supervising the construction and installation of machinery, and preparing machinery schedules and specifications.

The scope of the business was broadened considerably following Greene's sudden death in 1901 and the election as president of the newly incorporated firm of twenty-two-year-old Edwin Farnham Greene. While the engineering phase of the firm's activities continued to expand under the direction of Shedd, Reynolds, and Scott, Edwin Greene, who had a B.A. from Brown and was just starting postgraduate work in engineering at M.I.T. when his father died, concentrated his very considerable talents and energies on mill finance and management. In 1903 he was named assistant treasurer of Dwight Manufacturing Company; in 1906 he helped to promote a fine goods mill in Connecticut and became its treasurer; in 1907 he was appointed treasurer of Pacific Mills, one of the nation's largest and most prosperous mills. This trend was formalized in 1915 in the reorganization of the firm into a parent company with three subsidiaries: a wholly owned management company; a wholly owned engineering company; and Greelock, a holding company for mill stocks.

During the boom times for textiles from 1917 to 1921 all three divisions flourished. Through steadily increasing investments Greelock gained working control of six textile concerns which operated fifteen mills. Managers provided central purchasing, accounting, and the services of a cotton research organization for mills containing 700,000 spindles. The engineering division reached a peak in 1920 when it had 600 people employed in 11 offices and an architectural department.

Following a setback in 1921 and 1922, the American economy entered upon the period of "seven fat years" which provided much work for the engineering profession. Unhappily, textiles was an exception. Through

aggressive soliciting of business and a broad diversification into many types of industrial plants, the engineering subsidiary remained active as New York replaced Boston as the company's most important office. The mill management and ownership phases of the business, however, became increasingly unprofitable. As the textile depression dragged on, all of the concentrated resources of Lockwood Greene proved insufficient to keep up the interest payments on the debt incurred to purchase $17 million of largely New England mill securities, and the firm was dissolved in 1928.

In his treatment of this disheartening period, Lincoln's virtues of thoroughness and fairness shine through. Although his heart and his interests rested with the engineering division, whose earnings were being systematically siphoned into the parent company to keep it afloat, Lincoln gives full credit to E. F. Greene's daring and initiative in building up his textile empire, admires his ingenuity and courage in attempting to save it, and carefully explains how the choice of industry and the timing doomed the Napoleonic scheme to failure.

The engineering division was salvaged from the general debacle and reorganized as Lockwood Greene, Engineers, Inc., with Albert L. Scott as president and Chester S. Allen as vice president. With 5 offices, 88 employees and a firm commitment to return to the principles of Whitman, Lockwood, and Stephen Greene, the company got off to an excellent start during its first year and a half. Following the panic of 1929, however, the tide was sharply reversed. Lincoln is at his best in describing the process of steady retrenchment during the depression decade, as the firm closed one branch office after another, drastically reduced and then deferred salaries and saw employment drop to a low of 41 in 1936. The company was saved by the modest size of its obligations at a time when giants were tottering, the confidence of the banks in the sincerity and ability of the management and a continued diversification which enabled it to secure a small quantity of business in a great number of industries.

The red ink was finally shelved in 1941 after 11 consecutive years of losses. During the years which have followed, Lockwood Greene has stayed in the vanguard of those firms proposing to combine the functional with the beautiful in designing industrial buildings. Internally, the ownership base has been broadened to include more than one fifth of the current personnel. A modest pension plan and generous bonus and profit sharing arrangements have been instituted. Although New York has remained the most important source of new business, a development of much significance has been the increasing activity of the Spartanburg office in recent years, reflecting the expansion of industry and social overhead in the South. This is a valuable study for both business and economic history. Lincoln has carefully evaluated the impact of long-term exogenous forces and business cycles upon industrial engineering and has thrown much light on the contribution of engineering to the American economy over the past century. He does not, however, keep us consistently informed as to the relative position of Lockwood Greene within its industry.

At the start the pace is very slow, the style pedestrian and the approach almost antiquarian with numerous diversions and excursions into rather extensive genealogy. Much of the material consists of direct quotations incorporated into the body of the text. Lincoln had, apparently, only a

very limited amount of primary material for the period before the 1890's and as a result adds little new information on the careers of Whitman and Lockwood. As he gets into the Stephen, and especially the E. F., Greene periods and the business records increase in volume, the author gains confidence and not only does the story become more detailed but the tempo accelerates and even the style improves. When Lincoln reaches 1906 he is able to strengthen his account with firsthand information and to enliven it with revealing anecdotes which afford flashes of insight into the character and motives of top executives, project engineers, and customers. One important feature of the book is detailed biographical information on literally scores of people associated with the firm. At times, however, the very quantity of this data, strung for pages on end, leaves the reader surfeited rather than enlightened. Thus, while the reader gains a clear picture of the number and types of projects during a particular year and who was principally responsible for obtaining the commission, he misses a detailed discussion of how a project would progress from drawing board to completion, with the contributions of the various personnel fully described. On another level, although Lincoln is excellent on organizational changes, finance and administration, with appendices buttressing textual material for the crucial period 1901–1928, he presents little information concerning remuneration and working conditions. But this is asking for more from an author who has given us very much. In his profusely illustrated and fully indexed 858 pages, Lincoln attributes much of the success of Lockwood Greene to diligence, integrity and rigid adherence to fundamentals. The same conclusions can be applied to his recounting of its history.

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GUINNESS'S BREWERY IN THE IRISH ECONOMY, 1759–1876. ***By Patrick Lynch and John Vaizey. Cambridge [England] University Press, 1960. Pp. viii + 278. $7.00.***

Reviewed by Ralph W. Andreano
Earlham College

The title of this volume is most appropriate for this is as much a study of the economic development of Ireland as it is of one of that island's greatest business enterprises. Starting with the acquisition of the modest brewery at James Gate in Dublin in 1759 by the first Arthur Guinness, Lynch and Vaizey analyze in broad outline as well as specific detail the interconnection of the Irish brewing industry and domestic economic developments.

As a study of the growth and market behavior of an individual, family-owned business unit (in 1876 the firm became a publicly held corporation), the authors successfully place Guinness in the mainstream of the industrial environment in which the firm, by choice as well as accident, functioned. Their analysis of technology, cost and price behavior, output, and the capacity of the firm and industry to make adjustments in these factors consistent with the demands of the market, achieves a high level of sophistication in economic analysis frequently lacking in studies of this sort.

In the Ireland of 1797, linked to England by more than economic ties, the maritime sector of the economy with Dublin at its center and extending along the eastern coast to Belfast, Cork, Limerick, and Galway, a pace of economic activity was maintained dynamic by contrast with the static, rural, nonmoney economy in which nearly three fourths of the island's population existed. The Irish brewing industry, languishing after mid-eighteenth century, and in critical times during the 1770's and 1780's because of severe competition from "spirits" and imported British beer, assumes a new direction as the century ends.

Three factors probably accounted for this redirection of the industry: (1) repeal of the Beer Tax in 1795, culminating a campaign Dublin brewers had waged for more than twenty years; (2) the general prosperity of the maritime economy; and (3) a shift in Irish brewery output to more specialized forms, specifically porter, enabling firms to realize significant plant scale economies. In combination these three factors not only lessened competition of English imported beer and domestically produced "spirit," but served as a stimulus to expand output of Irish produced porter to accommodate the change in consumer tastes in the maritime economy.

The structure of the Irish brewing industry changes radically during the nineteenth century. Market size and plant expansion grew simultaneously and the number of breweries declined drastically: in 1832 there were in all of Ireland 216 breweries but by 1852 there remained only 92 and by the end of the century the number was reduced to less than 50. Although several explanations seem plausible, the authors suggest that the decline in the number of breweries and the increase in the size of plant was due to realized plant-scale economies, substantial increases in absolute capital requirements and improved efficiency in production and distribution.

Guinness's operations fall into several distinct phases. Before 1806, the company was mainly a Dublin porter brewery and shared with the other Dublin firms in the fight against English competition. After 1806 and until the 1820's the firm concentrated its activities in the Dublin market. In 1810–1811 it produced by volume one fourth of the beer brewed by all common brewers of Dublin. Its major competitors were Connolly and Somers with a market share of one sixth of Dublin output, and Twining and Keogh who produced one tenth of the total market. Guinness, though probably the largest Dublin brewer, was not yet the dominant firm it was to become by the last quarter of the nineteenth century.

During the 1820's and until the 1840's Guinness attempted to maintain and improve its Dublin position and to establish connections in England in an effort to expand export business. The 1840's and 1850's were significant years for the firm as the success of its English operations began to materialize. By 1855 Guinness was exporting one half of the total of Dublin beer exports. At the same time it moved vigorously to capture the domestic market in rural Ireland drawn into the mainstream of the economy in the aftermath of the Great Famine. Guinness took every advantage of its superior market position: it established effective agencies throughout rural Ireland, it concerned itself with both railroading and canal developments, and spent considerable resources on internal produc-

tion improvements. By the mid-1870's, Guinness was not only the largest Dublin brewer but the dominant beer producer in all of Ireland. Sales of Guinness tripled between 1800–1825, grew three-and-one-half-fold the following 25 years, and nearly eightfold in the succeeding 25 years. Its triumph of the Irish brewing industry was virtually complete and absolute.

The history of Guinness is indeed a success story on a grand scale. Through three generations from the first Arthur Guinness to Benjamin Lee Guinness and his sons, this family dominated one of the most important segments of the Irish economy. Such entrepreneurial success not only warrants study but it begs explanation: what favored Guinness so that it, instead of other equally likely firms, grew to such a dominating position in the industry? Was it endowed with more entrepreneurial talents than others? More capital resources? In short, how did this firm single itself out from the crowd? Lynch and Vaizey conclude that:

> **The growth of the brewery . . . is due to the Guinness's diligence and intelligence, but not to their single-minded devotion. . . . In one respect, however, they were remarkable. They chose men wisely. There are two indispensable conditions of outstanding success in business: the leadership that provides a confident sense of direction, and the capacity to select men with the qualities of mind and character for executing policy. (Pp. 244–245.)**

It is somewhat of a letdown to this reviewer not to have a more specific analysis of special factors accounting for the phenomenal success of Guinness. The excellence of Guinness's management is undeniable. This was particularly evident in the firm's move in the late 1840's to open up the former rural economy to the brewing trade: it did this with unerring efficiency and success. But if this approach was warranted in this period why wasn't it done earlier? The authors would argue, I suspect, that market conditions for such a move were not propitious earlier. This is in part true. Such an answer, however, turns on a full-fledged acceptance of the authors' conception of the structure of the Irish economy. Were the maritime and rural economies so separate that no interaction of a significant kind *could* emerge until after the Great Famine? Or was prior inaction due to a deficiency of entrepreneurial talents and capital requirements?

Similarly in Guinness's attack on the Dublin market at mid-century, was it merely the quality of its product which accounted for its complete capture of this market? After all, this was an industry in which prices were set by trade agreement, economies of scale were not based on technological superiority, and capital requirements could be met by alternative means. Since profit margins were falling perhaps Guinness's success was due to its willingness and ability to shade listed prices. But surely this alternative was open to other firms.

In summary, the shortcomings of this volume are due less to the authors' analytical prowess than to a marked deficiency of usable data, particularly at several critical points. This does not tarnish, however, the over-all excellence of the study.

• • •

THE LONDON & NORTH WESTERN RAILWAY. ***By O. S. Nock. London, Ian Allan, Ltd., 1960. Pp. 228. $8.00.***

Reviewed by Robert E. Carlson
University of Pittsburgh

This volume, another in the impressive array of books on British railways and locomotives by Oswald S. Nock, is not designed to be the definitive study of this "colossus among railways." Rather, the author has set out to "re-create something of the atmosphere of a railway that was a business giant, and at the same time a princely institution in English life."

As much as any, the London & North Western created great men and in turn was the product of this leadership. Formed in 1846 by the amalgamation of Robert Stephenson's London & Birmingham and Joseph Locke's Grand Junction, the first 20 years set the tone for its future operations. Mark Huish, its general manager, forthrightly declared that profits and reliable service were the company's distinguishing operational goals. Under two of its earliest secretaries, Edward W. Watkin, to whom this railway was a magnificent opportunity for maneuvering other companies and making money for its shareholders, and Richard Creed, who made this "Premier Line" a model of courtesy and good will, this policy was developed. A natural outgrowth of these goals was punctuality in service, looked on not as a pious hope or vague ideal but an obligation contracted for between the carrier on the one hand and the passenger or freight on the other. In fact, several times in its early years the L&NW refused to offer new service or accelerate the old because it had concluded that these changes endangered the contract of the time schedule.

Behind the scenes, always seeking economy and urging strong official action, was Richard Moon, adroit administrator and eventually the company chairman from 1861 to 1891. Working closely with and through his confidant, Stephen Reay, whom he made secretary in 1865, Moon absorbed more than a dozen railways into his complex and so changed the corporate financial picture that the percentage of expenditures to receipts was reduced from 71 to 47 per cent between 1860 and 1870. In many respects, Moon was typical of railway leadership, both in England and the United States, in the last third of the nineteenth century. In engineering improvements he was tough fisted to the point of sacrificing efficient and safe railway practice for profits (he kept a large letter "D" mounted in his office window at Euston to remind him never to forget dividends when any question of spending money was referred to him). He adopted the ingenious and inexpensive Clark and Webb chain brake because he thought it was good enough for his line's needs and withstood all demands in the interest of safety to change over to an automatic vacuum brake or one of Westinghouse design. He allowed Francis Webb, the company's chief mechanical engineer from 1871, to continue using his "Jubilee" class locomotives after they had passed their best years, again because he held that the current speed requirements called for nothing more efficient.

Yet in other areas Moon willingly spent money, especially when savings were readily apparent. Until 1862, the Crewe works had not realized their potential, but under John Ramsbottom, made the company's chief mechanical engineer in 1862 by Moon, and Francis Webb, Crewe be-

came the world's greatest locomotive manufactory. Here a Bessemer works was established in 1862, with Siemens-Martin open-hearth furnaces added in 1868; a new boiler shop, wheel forge, and steel casting foundry were included, so that locomotives were literally built from raw materials — a thousand between 1843 and 1866 and then an average of another thousand every 10 or 12 years thereafter. In addition, steel rails of varying lengths and every kind of apparatus needed in signalling systems were manufactured here.

Another of Moon's significant improvements — the Edgehill gridiron — demonstrates his willingness to spend money to enhance the profitable freight service. With freight traffic quadrupling between 1850 and 1873 and the Edgehill goods depots and docks only doubling in capacity, a new concept for organizing, or marshaling, trains was needed for this key Liverpool yard. The plan devised was novel and more than adequate. A train was brought to a reception point from which the individual wagons descended by gravity to several designated sorting sidings. Then, before coupling, each completed new train gravitated to a gridiron through which its wagons filtered so that the final train was made up in the correct order for detachment at intermediate points along the line. Without power-operated retarders or electronic devices, this scheme cleared 2,000 wagons a day.

This same spirit prevailed after the turn of the century. When George Whale, Webb's successor, set about to develop a simple 4–4–0 version of the "Jumbo" locomotive for quantity production, he and his staff designed and built the "Precursor" (from drawing board to actual use) in less than nine months. Similarly, when developments around London indicated the need for an electrified suburban rail system, the L&NW built a new line on which this service could be almost entirely independent of the existing steam locomotive system. Opened in part in 1913, this electrified scheme advertised itself by calling on Londoners to "Live in the Country" and enjoy commuter travel. Finally, when the majority of the A. E. F. came ashore at Liverpool, it was the L&NW that transported them to their English camps, achieving a climax on August 28, 1918, when 17,274 men were carried in 35 special trains.

By a fine collection of photographs and sketches, a series of anecdotes drawn from his personal experiences on this line, and his incisive character portrayals, the author has fulfilled his purpose; this is worthwhile reading for both the scholar and the railroad buff. However, this reviewer was disappointed in two things — the so-called "Bibliography" consists of only nine items and is virtually worthless, and there is no index, a must in a work of this character.

• • •

FREE GRASS TO FENCES. ***By Robert H. Fletcher. New York, University Publishers, Inc., 1960. Pp. 233. $12.00.***

Reviewed by Gene M. Gressley
University of Oregon

A survey of recent literature on the history of the cattle industry would indicate that a variation of Gresham's law is in operation. With a few

notable exceptions the recent outburst in quantity has been accompanied by a corresponding decrease in quality.

Ironically, the history of the Montana cattleman has been ignored by historians of that state. Joseph Kinsey Howard's *Montana, High, Wide and Handsome* (1942) and, more recently, K. Ross Toole's *Montana, Uncommon Land* (1958) devote a minor section of their books to the cattle industry. Undoubtedly a major reason for this slight is the overwhelming shadow of the Anaconda Company, which until recent years has dominated the politics and economic growth of the Treasure State. Unlike Wyoming and Texas, where oil and cattle interests have often had similar economic and political aims, geographic concentration, as well as the specific nature of the mining industry in Montana, has not been conducive to the creation of a similar climate of compatibility.

Free Grass to Fences purports to be a history of the Montana cattle industry with the story of the Montana Stockgrowers Association serving as the skeletal theme of the work. In general the author has denied himself the possibility of making a contribution. Little attempt at interpretation is evident. The narrative — a loose assortment of episodes — is strung together in erratic fashion. Of course it would be unjust not to note that the book is primarily aimed at the rancher who has some leisure time on a winter's eve.

Since the study was sponsored by the Montana Stockgrowers Association, the author's overwhelming desire to please the local cattleman is understandable, yet it is lamentable that he did not avail himself of the opportunity of broadening and deepening the scope of his work. The absence of footnotes, bibliography, and index (this last lacuna is especially mystifying) seems to dare the potential researcher to discover pertinent data.

Aside from the uncritical approach and technical deficiencies, hiatuses abound. Fletcher (who, the jacket blurb informs us, is the author of the original "Don't Fence Me In") has summarily dismissed or sketchily treated such subjects as: eastern investments, political potency of cattlemen, profits of the industry, marketing problems, and the conflict with railroads, a perennial problem up to the First World War.

Fletcher does state suggestively that Montana has been relatively free from much of the strife — between cattle king and small rancher and also between cattlemen and sheepmen — which has often marred the history of neighboring states. The only reason offered for this unique trait is the fact that the officers of the Montana Stockgrowers Association were more deliberate (Fletcher would say less "trigger happy"), and when they did employ vigilante action they did it before antagonism and bitterness had fully flowered. This would appear to be a "safety-valve" interpretation of vigilante justice.

Obviously the explanations are more complex than the author has discerned. It would be helpful to know the regional concentration of the sheep industry, the water rights available to both cattlemen and sheepmen, as well as to have an analysis of the intensity of depressions in each industry before any conclusion could be reached concerning the apparent peacefulness north of the forty-fifth parallel.

The most valuable part of the volume concerns the Stockgrowers in

the twentieth century. Even here, though, the author misses the chance to provide insight into the financial plight of cattlemen in the 1920's, particularly in the conflict with the Federal Reserve System.

The style is often quite readable, yet Fletcher is occasionally overwhelmed by his subject. When describing the blizzard of 1886–1887, he writes:

> **The chinook came early in January and worried stockmen were encouraged, but their hopes were thrown into reverse when, at the end of the month, a blast of brittle cold came out of the north that changed the melted snow into a coat of crystal armor and then covered it with a soft, treacherous mantle. The slender blades that held the hope of life were locked against pawing horse hooves and nosing cattle muzzles.**

The volume contains over 80 photographs, reproductions and drawings, many by that "Rembrandt of the Range" — as Montanans have been noted to refer to — Charlie Russell.

In sum, the book was written for the Montana rancher; its use will be restricted accordingly.

• • •

THE RICHEST AMERICAN, J. PAUL GETTY. ***By Ralph Hewins. New York, E. P. Dutton & Co., Inc., 1960. Pp. 404. $5.00.***

Reviewed by Elizabeth Bricker Currier
Seattle, Washington

When J. Paul Getty agreed to have Ralph Hewins write his biography his admonition was that Mr. Hewins " 'just tell the bad with the good — if there is any good' " (p. 20). Fortunately that is just about what Mr. Hewins has done in writing about J. Paul Getty. But unfortunately Mr. Hewins has done some mixing of the bad with the good himself in his use of some of the material, in his organization, and with some of the general facts he has used. Thus, if a reviewer may be permitted to employ a double standard, one may say that *The Richest American* contains a great deal of interesting and valuable information about the extraordinary J. Paul Getty and should, therefore, be a useful book. In the larger frame in which Ralph Hewins has placed the Getty story, however, let the reader take care.

One of the obvious faults in Mr. Hewins' work is that he has failed to relate this story of an important oil man to the existing studies of other oil companies and the oil industry. For example, the first two sentences of the book contain five errors about the dissolution of the Standard Oil Co. (N.J.). Such a stumbling start will not encourage the reader who knows better, and for the others it is unnecessary misinformation that an easy reference by the author to the Jersey Standard histories would have avoided. So it is with his comments on the history of Tidewater Oil Company, the entrance of Shell Oil Co. into the United States, the history of the California oil fields, etc. The careful reader will have to draw on his own knowledge or research in this regard.

In the same vein, the reader may feel obliged or may want to draw his own conclusions on some points. Ralph Hewins has a penchant for

broad statements and sweeping conclusions and often they swing wide of the mark. For example, in his introduction, Mr. Hewins says he hopes he has succeeded in portraying J. Paul Getty honestly in the manner of Gustavus Meyers [*sic*] (the simple error appears, too) in his classic *History of the Great American Fortunes*. Anyone expecting the slashing approach of Gustavus Myers, however, will certainly be disappointed. The author is not unkindly disposed toward J. Paul Getty, nor is it assumed that he should be. Actually he has presented the facts about as he was advised to do, thus the comparison to Myers is hardly to the point. So it is with other overstatements of Mr. Hewins, and one wishes he would bring his generalizations into sharper focus. In this same general context, it may be pointed out that the references to Christian Science are also somewhat misleading. Anyone familiar with the teachings of that church will recognize certain misconceptions, particularly the celebration of Mrs. Teddy Getty on caviar and champagne after young Timmy's operation. This may not be the fault of the author, but having become aware of his lack of care on a number of other points, one may also doubt his treatment of this subject.

All of this may call for more indulgence than one might normally expect to give an author, but in this instance it is worthwhile, for the story of J. Paul Getty is important, it should be available, and it will be read. For all of Mr. Hewins' awkward handling of the material, the fact remains that there is a great amount of good material here. To gather the facts the author has traveled far across the vast Getty empire; he has had access to family papers and private diaries, and he has made extensive use of J. Paul Getty's own books, *History of the Oil Business of George Franklin and J. Paul Getty* and *Europe in the Eighteenth Century*; he has interviewed old friends, employees, sons, ex-wives, and he has spent many hours with J. Paul Getty.

Throughout *The Richest American* Mr. Hewins has referred to some 12 "turning points" which J. Paul Getty himself designated as important developments in his life. They appear, however, rather irregularly and not very definitively as used by the author. One or two even seem to be missing, but that's all part of Mr. Hewins' problem of organization. For the purposes of a review it would seem that J. Paul Getty's life falls into four important periods: the years he worked with his father; the years from 1930 when J. Paul Getty emerged as the dynamic stock buyer seeking control of Tidewater Oil Co.; the war years of managing Spartan Aircraft and later Spartan Mobile Homes; and the recent years of oil in the Middle East and the role of a billionaire.

While Mr. Hewins insists that J. Paul Getty is a self-made man, it is clear from his story that George Franklin Getty had a great influence on his son. Turning from a successful law practice in Minneapolis, George Franklin was also successful in the oil fields in Oklahoma. In 1914, J. Paul Getty returned to the United States with his degree from Oxford University and made his decision to go into the oil business, too. The war and the academic life were both tempting him away, but with his father's financial backing, J. Paul Getty stepped into buying leases and exploring for oil in Oklahoma. Two years later he had made his first million dollars in this partnership with his father, and the Getty Oil

Co. was organized, the first company of the series that led to the billion dollar fortune. Being young and rich, J. Paul Getty "retired" for three years and devoted himself to the social side of life. Again, in 1919, he joined his father in the California oil field and again the Gettys succeeded. In 1924, George Franklin was worth $15,000,000. He organized George F. Getty, Inc., but without J. Paul Getty as either a director or stockholder. According to the author, George Franklin did not recognize his son's prowess and neither parent understood his worth; he was "underestimated for years" (p. 90). Evidence of such misunderstanding was J. Paul Getty's elopement about that time with a young woman the family had never met. The divorce within 18 months did not improve conditions. Those who believe that romance has its influence in the affairs of business will take interest in the fact that, as a result of this divorce, George Franklin Getty cut his son out of his will, and the restrictions on J. Paul Getty's future money manipulations because of that omission were profound.

A reconciliation was partially accomplished when J. Paul Getty joined his father's company and began to show his acumen in improving the company's operations. But shortly ahead lay the hectic years of 1929 and 1930 when J. Paul Getty was married and divorced again, Wall Street collapsed, his father died, and the will was read. From then on the second period began with J. Paul Getty trying to break the conservative rule of his mother, the sole heir of the oil properties, and the men of the Los Angeles bank who were executors of the estate and directors of the company. The first breakthrough came in the fall of 1930, when J. Paul Getty was able to make large purchases of Pacific Western and Mexican Seaboard stock to protect Getty properties from a unit plan in Kettlemen Hills. With these purchases another major step was taken toward his great fortune, for it was the build-up of Pacific Western that bought Tidewater Oil Co. and Skelly Oil Co., and the dividends from Tidewater-Skelly bought the Neutral Zone of Arabia.

The purchase of Tidewater Oil Company began with what J. Paul Getty considered a logical step to provide Tidewater's refining and marketing facilities with Getty's crude oil production. A friend has remarked that it was " 'fantastic vision and guts' " (p. 133) that drove J. Paul Getty through the Tidewater affair, and it was the caution and care of his mother that frustrated him at the outset. A cousin remarked, " 'If Aunt Sarah had gone along with Paul, he would have been a billionaire ten years earlier' " (p. 134). The settlement of grievances between mother and son is an interesting part of the Tidewater acquisition. With E. F. Hutton pressing for payment for stock purchases and a loan due to G. F. Getty, Inc., J. Paul Getty had to break the fetters that held the family funds. At Christmas, 1933 he was able to make his mother see how her conservatism had cost him millions; her first change of heart allowed him to pay his debts of $850,000. By the end of 1934, Sarah Getty had released the notes she held and insisted only on a spendthrift fund being established for the Getty sons. The ties were off at the proper time for, in January, 1935, some of the shares of Tidewater held by Standard Oil Co. (N.J.) in Mission Corporation were offered for sale by John D. Rockefeller, Jr. This famous and bitter battle for control of Mission for

Tidewater Oil Company is one of the most interesting sections of the book, and the author has included a number of observations by Getty, including his caustic comment, " 'The history of the controlling group's campaign in Mission reads like one of the stories of Daniel Drew and Jay Gould days' " (p. 159). Another observation by Bill Humphrey, Getty's worthy opponent in Tidewater, is an interesting commentary on Getty's technique, " 'The greatness of J. Paul Getty is that he knows how to wait. . . . He doesn't jump into hasty actions, but waits for something good to turn up, calculates all the hazards and only then moves' " (p. 163). Such patience paid off in 1937 when Getty gained control of Mission Corporation. In 1939, he gained a powerful voice in the management of Tidewater Oil Co., and in 1951 he had numerical control of the company's stock. In 1953, he elected all the Tidewater directors but one. Asests of Tidewater Oil Co. by 1958 were slightly below $680,000,000, and Getty's direct and indirect interest was $312,000,000.

After the struggle for Tidewater came a time of diversity of interests and investments. The Pierre Hotel property in Acapulco, Mexico, classical sculpture, carpets, eighteenth-century furniture, and paintings are among the Getty interests. Mr. Hewins devotes a considerable portion of the book to these "salad days." The section includes not only detailed descriptions of some of the *objets d'art*, but also diary entries that cover J. Paul Getty's last and unorthodox marriage in 1939.

The death of Sarah Getty and the start of World War II ended those happy days and marked the beginning of a new period in J. Paul Getty's career. In the process of bringing Skelly Oil Co. into Mission Corp., Getty also acquired the Spartan Aircraft Co. For four years he lived in Tulsa directing the manufacture of war material; in 1945, when new products had to be produced in the plant, he decided on Spartan Mobile Homes. With that venture, J. Paul Getty became a salesman for three years.

The final period of Getty's career has brought him back to oil production in great quantities and to a tremendous expansion of his other oil operations. In 1949, Getty signed an agreement with Saudi Arabia for the exploration and exploitation of oil in an undivided half share in the Neutral Zone, a desolate area between Saudi Arabia and Kuwait. Aminoil already had the agreement with Kuwait. In this complex affair, J. Paul Getty was once again successful. By 1958, he had invested $39,000,000 of his own money, and his theory as to the oil flow in that area had been proved correct. A conservative estimate of the reserves of the Neutral Zone at that time was set at 1.5 billion barrels. J. Paul Getty owned half. When the first oil was found, plans were started for a modern refinery to handle the low cost, low gravity crude. The result was a $200,000,000 plant in Wilmington, Delaware, which is said to outdate every other refinery in the industry by 10 to 15 years. According to Ralph Hewins, starting the high-octane race has earned J. Paul Getty nationwide animosity from the petroleum industry, which has had to catch up with him, in the meantime trying to discredit and hamper him.

The 1957 quotas on foreign crude were viewed by Getty's rivals as the factor that would break him. They calculated that not even billionaire

Getty could support the investment of nearly $70,000,000 in Arabian refining facilities and $200,000,000 in tankers unless these assets could function fully. But J. Paul Getty was not unprepared. He had refineries in Japan, Italy, and Denmark, and by his own words was, " 'fully capable of riding out the storm indefinitely' " (p. 333).

At the close of *The Richest American* one has the feeling that J. Paul Getty is capable of riding out all storms but marital ones. Five marriages and divorces have not left him cynical, however. " 'It isn't good to be cynical about anything' " (p. 374). Throughout the book such personal comments and diary entries reveal Getty's warm and affectionate side. Nearing his fiftieth birthday he wrote, " 'How I miss my parents; now I am an orphan' " (p. 269). Of a son he wrote, " 'My darling son Paul, aged 17, wants to enlist in the Marines. Will write asking him to wait' " (p. 393). After the sad death of his youngest son he observed, " 'It's too bad Timmy didn't have a wiser father' " (p. 389). Perhaps much of what he has experienced makes clearer his comment, " 'A millionaire — or a billionaire — has to create his happiness *despite* his wealth' " (p. 374). The last nine chapters are among the most rewarding in that they include Getty's business and political thinking, they reveal the current J. Paul Getty, the man behind the facade of press publicity. They also tell of Getty's four sons, "his hope of the future." In an age of super-organization and conformity, it is particularly interesting to read of the dynamic individual, the fearless Mr. Getty, and the reader is indebted to Ralph Hewins for presenting such a vital picture of the man. Whatever his problems as an author, Mr. Hewins has made a real contribution in this biography of a remarkable businessman of our time.

In 1957 the Foundation for American Resource Management published an annotated bibliography of the literature concerning the California Coast Redwood. This bibliography is the work of Emanuel Fritz, Professor of Forestry, Emeritus, University of California.

The Foundation for American Resource Management has recently given the Forest History Society all remainder copies of this book. They will be offered for sale to libraries and all readers of Forest History at a greatly reduced price. This book sold originally for $7.50. Remainder copies are now offered at $1.00.

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